

## Corrigendum - 02 Dated 31/12/2024 to CPC Tender No. BHEL/CPC/SPT/T YARD TO CHIMNEY RAFT/25/057

**Name of Work:** Civil, Structural & Architectural works for entire Power Block Area (T-Yard to FGD up to Chimney Raft) - Power House, Boiler, ESP, Mill & Bunker, TG, BFP, Fan Foundations, FGD, TG, CEP, CW pit, ESP Control Room, Chimney Raft, ID Ducts, Paving Works, Transformer Yard, CST Pump House, Compressor, DG, MRS, AC & Ventilation Ducting, Labour Hutment for 1000 workers including land leasing, Rooftop Solar System foundation (Within power block area), Sewage water line (Within BTG area), Civil work for LP piping & Fire Fighting (Within BTG area), Pipe rack/cable rack (Within BTG area), CW Duct Buried (Civil work within power house area), Worker's Rest Room etc. At 1x800 MW NTPC Sipat, Chattisgarh

A) **Time Extension:** Clause No. 1.0 Salient Features of NIT in NOTICE INVITING TENDER is revised as below:

Sl. No.	Clause No.	Existing in Tender	Revised As per Corrigendum-1	Revised As
1	SI. No. v) DUE DATE & TIME OF OFFER SUBMISSION.	Date: 24/12/2024, Time: 10:00 Hrs	Date: 31/12/2024, Time: 10:00 Hrs	Date: 04/01/2025, Time: 10:00 Hrs
2	SI. No. vi) OPENING OF TENDER	Date: 24/12/2024, Time: 16:30 Hrs	Date: 31/12/2024, Time: 16:30 Hrs	Date: 04/01/2025, Time: 16:30 Hrs

B) **The clarifications on bidder's queries issued by BHEL are as below:**

S.No	Tender Clause	Tender condition	Bidder's queries	Clarification
1	BOQ item no.A1	Construction and maintenance of labour colony having adequate no. of rest rooms along with toilets & fencing etc. as per drawing attached and TCC including associated civil and structural works on built, own and operate basis. Proposal for construction of these hutment is to be got approved from BHEL before organizing material and execution.  Payment towards construction/development of labour colony of each Set as per drawing attached and as above shall be paid by BHEL. Payment shall be done for each set on set wise completion.  Land for labour colony shall be arranged by the contractor on his own cost as per availability outside project area within 5Km, Necessary levelling/dressing of land shall be done by the contractor. All arrangement for electricity and drinking/service water to be arranged by the contractor within his quoted price. Minimum 04 set shall be handed over for accommodation with all amenities within Three (03) Months and balance 04 sets within five(05) months from date of start as per TCC.	The development and constrution of labour colony requires almost entire brought out items which need to be procured in cash. requested to consider the payment of those brought out times when it is brought at site.  Please clarify - weather air cooler machine and cooling duct has been considered or not. if considred please provide the specification and detial for the same.  we presume that all outer walls and partitions are built with 75 mm thick modular aerated concrete panel. no brick work has been considred in any where in labour colony - please confirm.  As per the contract clause TCC 3.9 (page no. 22 of 55) 50% of labour colony after being taken over by BHEL, the maintance of the same shall be in the scope of contractor/ bidder. This condition is likely to create a lot of confussion and disagreement among BHEL and bidder/contractor as the area will be occupied by the manpower not directly under the control of the bidder/contractor. Thus we request to keep the scope of O&M in the scope of entity occupying the area of the BHEL part.	Refer "Standard Guidelines for Worker's Accommodation / Establishments at BHEL-Project Sites-Annexure-A" is to be followed along with drawing and specification.Please refer S no. C (3) of Corrigendum-2 as mentioned below for Clause no. 3.9 of TCC.
2	BOQ item no.101		In item no. 101 special type of dewatering viz well point method has not been excluded whereas in item no. 103, 105 & 106 no special type of dewatering has been excluded. Please confirm in item no. 103, 105 & 106 special type of dewatering has been excluded or not.	Item rate is inclusive of dewatering (but excluding special type of dewatering viz. well point method) item no. 101, 103, 105 & 106.  Refer Annexure-B to Corrigendum-2 attached herewith for modification in item description of BOQ,item no. 103,105,106
3	BOQ item no.301,302 & A302		The rate differene between item no.301 i.e for below ground level shuttering where no vertical support is considred for the bottom face of form work and item no. 302 & A302 where it being above ground level requires vertical support i.e scaffolding or other simillar support system is around Rs.120/- to Rs.200/- per sqm which is not adequate mainly in building works as repetition and fixing of support for shuttering work is not possible due to uneven size in columns and beams at every level being provided by BHEL. Thus we request you to either keep the sizes even and regular size in majority of areas to get the shuttring repetition to economize the cost of above ground level shuttering or the difference in rate between the below and above ground level at least Rs.600/- sqm.	Tender specification shall prevail.
4	BOQ item no.905	Providing and fixing single or double steel door shutters with 18 gauge M.S sheets shutter presenting a flush surface on the outside and inside stiffened with semitublar edge and central suffering rail which shall convey the lock including fixtures. /Godraj or equivalent make mortice lock with handle on both sides, shope and final painting etc. all complete.	Please provide thickness of steel door shutter.	Refer Annexure-B to Corrigendum-2 attached herewith for modification in item description of BOQ item no. 905.
5	BOQ item no.915	Providing, fixing and fitting of glazing of first grade class in steel/aluminium/wooden frames, where ever required, cleaning after fixing including hardware, gaskets, clips, beadings etc. all complete. C. 5.5 mm thick clear float glass	The manufacturing of 5.5 mm thick glass has been discontinued hence you are request to kidly replace the 5.5 mm thick glass with either 5 mm glass or 6 mm glass thickness.	Noted. 6mm thick clear float glass may be used in place of 5.5mm thick glass.  Refer Annexure-B to Corrigendum-2 attached herewith for modification in item description of BOQ,item no. 915.

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6	TCC clause no. 3.2.1 page 18 of 55	Electricity for construction purposes (for Site/Project works only) 3 Phase 415/440 V within project premises. (a) Single point source - Free of cost at one point near the site. Further distribution and Metering are in scope of bidder.	Provide the electricity connection at least 5 locations as listed below : 1- Fabrication yard 2-Batching plant 3-Main plant area 4- In between, chimney and ESP 5- Office & store of contractor	It is envisaged that Construction power (three phases, 415 V/ 440 V) will be provided free of cost at one point near the site at a distance of approx. 500M within 04 months from the date of start of work. However, another one or two location (based on feasibility during site execution) may be provided at the discretion of BHEL.
7	TCC clause no. 3.3.1 page 19 of 55	Water Supply :- For construction purposes: a Making the water available at single point - Free of cost at one point near the site. Further distribution and Metering are in scope of bidder.	Provide the water connection at least 4 locations as listed below: 1- Batching plant 2-Main plant area 3- In between chimney and ESP 4- Office & store of contractor	Tender specification shall prevail.
8	TCC clause no.4.1 page 19 of 55	4.1 Tools and Plants: 3. Batching Plant (60 Cum/Hr.) with Sufficient Capacity of Silos.	The total concrete quantity as per BOQ is approximately 133000.00 cum. Considering at least 70% of the total quantity to be executed in 14 month that is 6650 cum per month and considering 24 days plant operation in a month per day required production of concrete comes to 277 cum per day. Considering 2 nos 30 cum capacity batching plants each having 20 cum concrete production per hour with 8 working hours per day, the concrete production comes to 320 cum/day which is more than required average concrete production of 277 cum/day. Thus we request you to allow 2 nos batching plant of 30 cum/hr capacity insted of 1 nos batching plant of 30 cum/Hr and 1 nos of 60 cum/Hr capacity to economize the cost of concrete.	Tender specification shall prevail.
9		Supply Vs fixing	As mentioned in some items the payment has been considered in two stages against supply 60% and against fixing 40%. The payment @ of 60% of item rate shall be released immediatly after supply of the item whereas 40% shall be released after fixing of item which will take longer time. Any item being brought by the contractor against which the payment is made against supply, upon fixing of the same, it will have components of wastage, overlap etc. thus we request you to kindly clarify what quantity will be considered for supply . If the same is based on laid/ fixed area basis we request you to kindly provide us the assigned percentages for all the hidden/incidental components such as fixing over lap etc. against all such items.	Payment against supply of materials/items is tentative and shall be governed as per Payment Terms as mentioned in BOQ Cum Rate Schedule. However, payment made against supply shall be reconciled after execution of work and the actual executed quantities as per BOQ items shall be considered as supply quantity.
10	As per BOQ - ST No - A2	Depolymnet of QA/QC Engineers	Engineers and Technicians are to be provided by the contractor as per these BOQ item . It is not clear whether their services will be under the direct control of BHEL.	These manpower shall be deployed at Centralized Civil Quality Lab wherein tests shall be performed for all vendors working at this project site and shall be under direct control of BHEL.
	As per BOQ - ST No - A3	Depolymnet of Manpower for QA/QC Testing		
	As per BOQ - ST No - A4	Deployment of Laboratory Technician		
11	As per BOQ	All Cement related Items	Items for Concrete in the BOQ doesn't indicate that cement will be supplied by BHEL although NIT specifies that Cement will be supplied by BHEL free of cost. The same should also be mentioned in the BOQ items for Concrete, to avoid confusion in interpretation of the BOQ item	Refer clause 9.1 wherein it is mentioned that Cement, Reinforcement Steel and MS Round Bar (Earthing Rod) & Structural Steel are to be issued by BHEL (Free of Cost) unless otherwise specified in BOQ cum Rate Schedule.
12	As per BOQ -ST No. B 506	Water Proofing on Roof	Item Description is not clear, Needs to be reviewed and clear description to be given	Refer Annexure-B to Corrigendum-2 attached herewith for modification in item description of BOQ item no. B506.
13	As per BOQ -ST No. A 910	Aluminium Composite panel	Description is not clear ,needs to be reviewed and clarified	Refer Annexure-B to Corrigendum-2 attached herewith for modification in item description of BOQ item no. A910.
14		Construction and maintenance of Labour Colony	Eight no of sheds are to be constructed as per Tender Specification , Payment may please be done on completion of each shed as per following payment break up. 1. 60% against supply of all materials 2. 25% against completion of installation 3. 15% against final handing over	Payment for each shed shall be done on completion of that shed and part payment is not envisaged.
15		Construction power	Construction Power may please be provided two months after order placement in stead of four months . Else cost of power be compensated till power is made available	Tender specification shall prevail.
16		Batching Plant	In place of on 60Cum plant two 30 Cum Plant can be considered which will provide more flexibility during project execution	Tender specification shall prevail.
17		Excavators	Inplace of two excavators and three excavators cum rock breaker ,four excavator cum rock braker can be considered as excavators can be always with rock breaker attachment.	Tender specification shall prevail.

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18	BoQ: A2317	Structures: 4mm Thick Stainless steel Liner	For Better Cash flow against this item the following payment terms may be considered. Payment Terms: 1. ON RECEIPT of Materials- 50 % - 2. FABRICATION - 15 % 3. ERECTION - 20 % - 4. BALANCE 15 % - ALIGNMENT AND WELDING	Refer Annexure-B to Corrigendum-2 attached herewith for modification in item description of BOQ item no. A2317.
19	Item no A1 of the BOQ	Construction and Maintenance of Labour Colony	As per BOQ description we need to hand over 8 Nos Sets to BHEL Whereas as per Chapter III Contractor need to handover 04 sets to BHEL for allotment to other agencies and 04 Sets can be used as per own requirements.	Please refer S no. C (3) of Corrigendum-2 as mentioned below for Clause no. 3.9 of TCC.
			In the event additional labour sets (more than 8 Nos) are required for labour for contractor use – BHEL will make the payments?	Refer "Standard Guidelines for Worker's Accommodation / Establishments at BHEL-Project Sites-Annexure-A" is to be followed along with drawing and specification.
			We understand that Maintenance of labour sets for contractor scope whereas we need not take care of running maintenance of BHEL labour sets.	Please refer S no. C (3) of Corrigendum-2 as mentioned below for Clause no. 3.9 of TCC.
			Statutory Requirements for all labour sets shall be in the scope of BHEL?	It shall be in the scope of bidder.
			Barricading required for BHEL labour sets - if yes how payments shall be done.	Bidder to take care of it considering the safety and security aspect. No separate payment shall be made.
			Method of payments of intermediate walkway / roads between the labour sets	Refer "Standard Guidelines for Worker's Accommodation / Establishments at BHEL-Project Sites-Annexure-A" is to be followed along with drawing and specification. No separate payment shall be made.
20	Chapter IX	Materials	Please Clarify the supply of cement by BHEL scope at free of cost for all the concrete items , Brickwork and other cement related works etc  We understand that the cement will be supplied by BHEL at free of cost for all concrete items , brick works , plastering and other cement related works. Please Confirm. --	Bidder is requested to refer the BOQ CUM RATE SCHEDULE and Chapter IX: Materials, of the TCC .
21	Chapter IX	Materials	Please confirm whether Concrete, Cement, Re-enforcement, and Structural Steel are to be provided by BHEL free of cost or are within the contractor's scope.	Kindly refer BOQ CUM RATE SCHEDULE & Chapter IX : Materials , of the TCC .
22	BOQ cum rate Schedule		For item no. 882301, kindly provide the location of the BHEL store/yard for the transportation of structural steel.	As per Clause 1.1 of the TCC, the Bidder shall visit project site and acquire full knowledge and information about conditions prevailing at site and in & around the plant premises.

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C) The Modifications in Technical Condition of Contract issued by BHEL are as below:				
Sl. No.	Reference Tender Document	Reference clause	Existing provision	BHEL's Clarification
1	TCC	Clause 2.6.1	A – Civil Works • Operator, Licensed Electrician, Mechanic - As per requirement • Experienced Carpenters & Helpers – lot for similar nature of work • Experienced Bar Benders & Helpers – lot for similar nature of work	Operator, Licensed Electrician, Mechanic - Minimum 2 Nos
2	TCC	Clause 2.6.1		C – Tentative Breakup of Manpower Requirement for Civil & Structural Work Experienced Carpenters & Helpers Approx. - 250 nos. Experienced Mason, Bar Benders & Helpers - Approx. 250 nos. Experienced Erection Manpower including Fabricator, Rigger, Fitter & Helpers. - Approx. 250 nos. Other manpower like Painters, Supervisors, Operators, Helpers, etc - Approx. 250 nos. Total Approx. 1000 nos.
3	TCC	Clause 3.9.1	Labour colony comprising of 08 set for approx. 1000 workers are to be developed by bidder for all the labours required to be deployed for the works. All labour colony set-up is to be developed as per attached drawing and in compliance of statutory requirements. Contractor shall construct Labour Hutment as per specifications mentioned in the attached drawing, for which no separate payment shall be made by BHEL. Payment shall be done for each set on set wise completion.	Labour colony comprising of 08 set for approx. 1000 workers are to be developed by contractor for all the labours required to be deployed for the works. Land for labour colony shall be arranged by Contractor at their own cost and lease of total land shall be kept valid till the contract period. All labour colony set-up is to be developed as per attached drawing and in compliance of statutory requirements. Contractor shall construct Labour Hutment as per specifications mentioned in the attached drawing, for which no separate payment shall be made by BHEL. Payment shall be done for each set on set wise completion as per BOQ CUM RATE SCHEDULE. Out of 08 set, 04 set will be for the exclusive use of the contractor and remaining 04 set shall be at the disposal of BHEL for allotment to various other agencies working at site from time to time. Minimum 04 set shall be handed over for accommodation with all amenities within Three (03) Months and balance 04 sets within Five (05) months from date of start. Out of the initial 04 set, 02 set shall be used exclusively by the bidder and the balance 02 set shall be handed over to BHEL. Payment of monthly RA bill beyond the period of Three (03) months (i.e beyond 3rd RA Bill) shall not be released without completion of Four (04) set of labour hutment as per drawing. Further, Payment of monthly RA bill beyond the period of Five (05) months (i.e beyond 5th RA Bill) shall not be released without completion of total eight (8) shed/sets of labour hutment. Note: a) Maintenance of only the 4 nos. labour/workmen sheds (including surrounding area) being exclusively used by the contractor shall be their responsibility. b) Maintenance of balance 04 nos. labour/workmen sheds (including surrounding area) handed over to BHEL shall be done by the allotted agencies of BHEL using the sheds. c) Maintenance of common facilities within the labour/workmen establishment shall be done on pro-rata sharing basis among the available contractors. d) The ownership of these 8 sheds/sets lies with the contractor.
4	TCC	Clause 3.9.1	Out of 08 set, 04 set will .....BHEL.....from time to time. These all 08 set will be maintained by bidder. Minimum 04 set shall be handed over for accommodation with all amenities within Three (03) Months and balance 04 sets within Five (05) months from date of start. Payment of RA bill beyond the period of Three (03) months shall not be released without completion of Four (04) set of labour hutment as per drawing. Note: Out of the initial 04 set, 02 set shall be used exclusively by the bidder and the balance 02 set shall be handed over to BHEL.	Labour colony comprising of 08 set for approx. 1000 workers are to be developed by contractor for all the labours required to be deployed for the works. Land for labour colony shall be arranged by Contractor at their own cost and lease of total land shall be kept valid till the contract period. All labour colony set-up is to be developed as per attached drawing and in compliance of statutory requirements. Contractor shall construct Labour Hutment as per specifications mentioned in the attached drawing, for which no separate payment shall be made by BHEL. Payment shall be done for each set on set wise completion as per BOQ CUM RATE SCHEDULE. Out of 08 set, 04 set will be for the exclusive use of the contractor and remaining 04 set shall be at the disposal of BHEL for allotment to various other agencies working at site from time to time. Minimum 04 set shall be handed over for accommodation with all amenities within Three (03) Months and balance 04 sets within Five (05) months from date of start. Out of the initial 04 set, 02 set shall be used exclusively by the bidder and the balance 02 set shall be handed over to BHEL. Payment of monthly RA bill beyond the period of Three (03) months (i.e beyond 3rd RA Bill) shall not be released without completion of Four (04) set of labour hutment as per drawing. Further, Payment of monthly RA bill beyond the period of Five (05) months (i.e beyond 5th RA Bill) shall not be released without completion of total eight (8) shed/sets of labour hutment. Note: a) Maintenance of only the 4 nos. labour/workmen sheds (including surrounding area) being exclusively used by the contractor shall be their responsibility. b) Maintenance of balance 04 nos. labour/workmen sheds (including surrounding area) handed over to BHEL shall be done by the allotted agencies of BHEL using the sheds. c) Maintenance of common facilities within the labour/workmen establishment shall be done on pro-rata sharing basis among the available contractors. d) The ownership of these 8 sheds/sets lies with the contractor.

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5	TCC	Clause 3.9.3	Land for labor colony shall be arranged by Contractor at their own cost as per availability outside project area within 5Km, Necessary levelling/dressing of land shall be done by the contractor. All arrangement for electricity and drinking/service water to be arranged by the contractor within his quoted price.	One Medical Centre (24 x7 working), well finished & furnished, of approx. 150sqm shall be constructed by the contractor in the labour establishment area for the workmen with ambulance facility in line with BHEL layout drawings & Guidelines (As per Annexure A - Standard Guidelines for Worker's Accommodation / Establishments at BHEL-Project Sites) shall be constructed at workmen establishment. Payments for medical staffs such as doctors, nurse, ambulance services, consumables, medical instruments/devices & running medicines has to be initially borne by the bidder. The cost incurred shall be shared/distributed among the availing agencies as decided by BHEL site.
6	TCC	Clause 3.9.4	VOID	Contractor shall ensure establishment & maintenance of workmen/labour colony in line with BHEL layout drawings & Guidelines (As per Annexure A - Standard Guidelines for Worker's Accommodation / Establishments at BHEL-Project Sites)
7	TCC	Clause 3.9.6	Providing and maintaining facilities for safety, welfare, drinking water and sanitation, hygiene, biennial health check-up etc. for construction workers at their workplaces as well as at labour & staff colonies.	VOID
8	TCC	Clause 3.9.7	Development and maintenance of above facilities for construction workers deployed by the Contractor shall solely rest with the Contractor.	VOID
9	TCC	Clause 7.3		In line with TCC Clause No 3.9.1, Payment of monthly RA bill beyond the period of Three(03) months (i.e beyond 3rd RA Bill) shall not be released without completion of Four (04) set of labour hutment as per drawing. Further, Payment of monthly RA bill beyond the period of Five (05) months (i.e beyond 5th RA Bill) shall not be released without completion of total eight (8) shed/sets of labour hutment.
10	TCC	Clause 7.4		The contractor shall maintain the labour colony for its workmen as per BHEL guidelines.0.25 % of every RA Bill shall be linked/released on certification from BHEL for compliance with the guidelines of labour colony.Regular visit of workmen establishment shall be done by team from BHEL to ensure implementation of above guidelines. Any irregularities observed shall have to be rectified by agencies on immediate basis. In case, the report submitted by BHEL team is not satisfactory, necessary actions including recoveries (0.25% of RA Bill value) shall be done as per contract. In addition to the recoveries as per contract (0.25% of RA Bill value), expenses incurred (if any) for maintenance & rectification by BHEL shall be recovered from agency along with 5% overheads.
11	BOQ cum rate Schedule			Clarifications/ modifications in item description as per <b>Annexure-B</b>

**Note:**

- 1) All other terms and conditions against this NIT shall remain unchanged.
- 2) This corrigendum is to be submitted duly signed and stamped along with the Techno-commercial bid (Part- I).

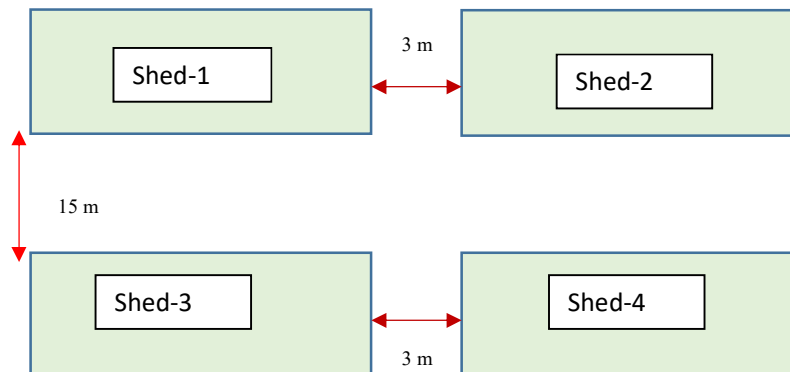
**For BHARAT HEAVY ELECTRICALS LTD  
Sr. Manager / SCT- CPC**

## Annexure-A

### Standard Guidelines for Worker's Accommodation / Establishments at BHEL-Project Sites.

#### **1). The following key parameters should be followed during construction of workers accommodation/establishments at project sites: -**

- a) Land for labour colony shall be arranged by Contractor at their own cost as per availability outside project area preferably within 5Km. Necessary levelling/dressing of land shall be done by the contractor. All arrangement for electricity and drinking/service water to be arranged by the contractor within his quoted price. However, BHEL may provide land on sharing basis for worker establishment in case Owner provides the same to BHEL.
- b) Water & Electricity for worker establishments shall be suitably arranged by the agency with proper electrical wiring and fitting.
- c) Providing and maintaining facilities for safety, welfare, drinking water and sanitation, hygiene, biennial health check-up etc. for construction workers at their workplaces as well as at labour & staff colonies by the agencies.
- d) The workers accommodation barracks/hutment should be placed as per approved layout plan of BHEL. Agencies to construct temporary labour colony/ hutment, toilets as per attached drawings, after obtaining approval from BHEL site.
- e) **General layout plan for accommodating 120 workers with toilet facilities have been provided in the drawing.** In case, agencies are required to deploy more/less number of workmen at site, the size/nos of shed may be increased/decreased accordingly in consultation with BHEL site. The worker's shed position & its size shall be reviewed & approved by BHEL considering maximum number of workers planned for deployment. No construction shall be permitted without prior approval of proposed layout of worker accommodation by BHEL.
- f) The type and nature of construction for worker accommodation sheds should be preferably uniform for all the agencies so as to bring out a pleasant aesthetic view of the worker's establishment.
- g) For women workers deployed at site, exclusive separate facilities (sheds, bathrooms, etc) considering the privacy & safety of women should be provided by the agency.
- h) The clear ceiling height of the barracks should be minimum 3 metres. There should be minimum 3ft spacing between two beds to ensure adequate privacy & hygiene of the place. The type of sleeping bed in each barrack should be wooden/metal type & no substandard quality sleeping bed will be allowed by BHEL. Wardrobe/shelves for storage of clothes & other essentials to be provided in each hall.
- i) The size of barracks / hutments should be decided considering minimum space requirement of 3.6 sqm / per workers & there should be minimum 3 m spacing between two barrack side by side & 15 m. front to front as shown below. A typical layout plan of labour colony is shown in **Annexure-IA**.



## **Annexure-A**

### **Standard Guidelines for Worker's Accommodation / Establishments at BHEL-Project Sites.**

#### **2). Facilities to be Provided at Labour Establishment**

**a) Toilet, Bathing & Washing: -**

- i). Sufficient numbers of toilets, urinals and bathing room within each barrack/shed with complete water supply system. Minimum 1 nos. urinal cum toilet for every 10 persons and 1 no. bathing room for every 10 persons should be ensured. There should not be any open bathing place in the labour colony to maintain proper hygiene.
- ii). Septic tank/Bio-digester with proper inlet/outlet connection to be provided for each shed
- iii). Suitable / proper arrangements for washing clothes & drying washed clothes shall be made.

**b) Service & Drinking Water: -**

- i). Proper storage facilities for both service water & drinking water in the labour colony. In case ground water is the source for both service & drinking purpose, water purification plant should be installed for both service & drinking water purpose. The cost of water purification plant has to be borne by the agencies on sharing basis.

**c) Medical Facilities: -**

- i). One Medical centre (24 x7 working), well finished & furnished, of approx. 150sqm shall be constructed by the contractor in the labour establishment area for the workmen.
  - Doctor's room with attached toilet (approx. 12x12 sqft),
  - Nurses Room with attached toilet (approx 12x12 sqft),
  - Dispensary area (approx. 10x10 sqft)
  - Balance area shall be procedure room/hall.
- ii). Deployment of 2 nos MBBS Doctors and 4 nos trained Male/Female nurses for round the clock service with running medicines.
- iii). Dedicated ambulance in the labour colony for 24x7 hrs emergency medical situation fully equipped with ventilation facilities.
- iv). Cost of medical establishment including payments for medical staffs such as doctors, nurse, ambulance services, consumables, medical instruments/devices & running medicines cost has to be borne by the availing agencies on sharing basis as decided by BHEL site.

**d) Safety, Cleaning & Hygiene: -**

- i). The regular cleaning and housekeeping of labour establishments, storage water tank, open areas should be ensured by the agencies to maintain proper hygiene. Dedicated persons to be deployed for cleaning of toilets on daily basis.
- ii). Proper ventilation and lighting in both day & night. Proper false ceiling (in extreme hot conditions) & ceiling fans/coolers shall be provided in the barracks.
- iii). Readily accessible adequate first aid boxes, minimum 4 numbers each of fire extinguishers & dust bins shall be provided in each barrack/shed.
- iv). Centralised garbage dumping storage area in the labour colony & its regular clearance should be ensured by the agencies.
- v). Suitable arrangement for regular Pest / ants / Rodent / Rats / Snakes / Mosquito control in the labour colony shall be made with a reputed firm/ organisation by the vendor at their cost. Window mesh for prevention from mosquito shall be ensured.
- vi). Proper surface water drainage system to be followed by the agencies as per BHEL approved layout plan of the labour colony. No water logging should take place in and around labour colony even during peak rainy season.

## **Annexure-A**

### **Standard Guidelines for Worker's Accommodation / Establishments at BHEL-Project Sites.**

- vii). Proper security deployment 24x7 for labour establishment by the respective agency

**e) General Points: -**

- i). Proper approach road to the labour colony & its connectivity with each barrack with necessary hard surfacing preferably with brick flat soling/paver blocks/PCC paving.
- ii). Separate kitchen facilities with dining hall & clean cooking fuel (without smoke) should be used uniformly in labour establishments to avoid health hazards.
- iii). Space for recreation facilities of the workers like playground etc. The maintenance of the recreation facilities should be ensured by the agencies on sharing basis. Also, weekly or fortnightly games/get-together/entertainment to be organised by the vendor for building motivation & team spirit amongst the labour.
- iv). Proper transportation arrangement / conveyance for going to work place from labour colony would have to be ensured by agency. No two-wheelers would be permitted inside plant premises.

### **3). Compliances of Guidelines: -**

The contractor shall maintain the labour colony for its workmen as per BHEL guidelines. 0.25 % of every RA Bill shall be linked on certification from BHEL for compliance with the guidelines of labour colony.

In case labour establishment is not completed as per the layout drawing and compliance with statutory norms/BHEL Guidelines and any penalty is imposed by Customer, same shall be recovered from contractor's RA Bill.

Regular visit of workmen establishment shall be done by team from BHEL to ensure implementation of above guidelines. Any irregularities observed shall have to be rectified by agencies on immediate basis.

In case, the report submitted by BHEL team is not satisfactory, necessary actions including recoveries (0.25% of RA Bill value) shall be done as per contract. In addition to the recoveries as per contract (0.25% of RA Bill value), expenses incurred (if any) for maintenance & rectification by BHEL shall be recovered from agency along with 5% overheads.

In case Owner/Customer specific guidelines & drawings w.r.t worker's establishment are available in any project, the same shall prevail over and above the BHEL guidelines. Also, in case of conflict of guidelines stipulated in BHEL HSE documents, the more stringent guidelines shall prevail.

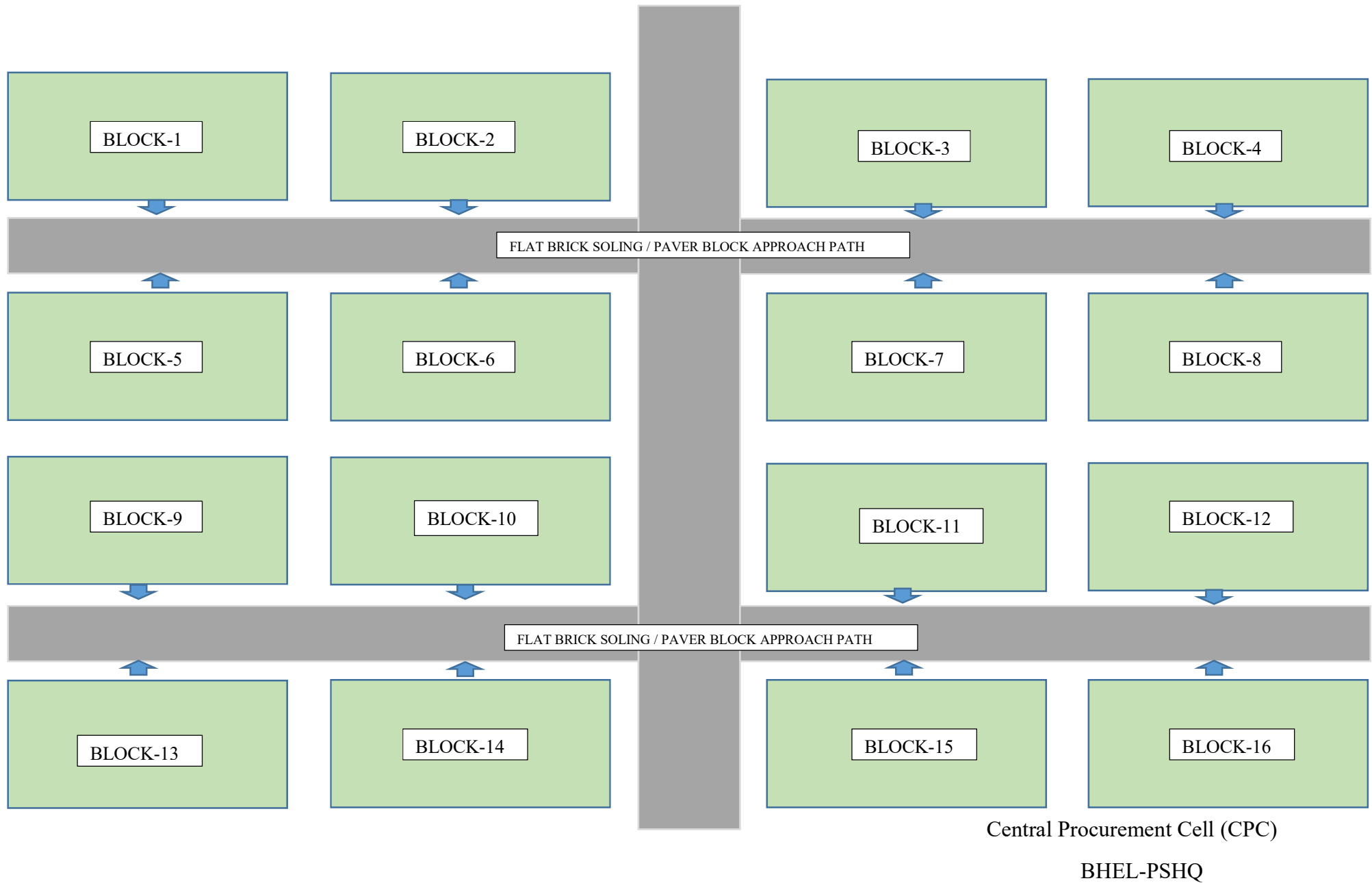
Any other welfare measures which the Central Government considers, under the set of circumstances, as required for decent life of workers shall be ensured as per following applicable Labour Laws: -

- Contract Labour (Regulation & Operative) Act, 1970,
- Inter-State Migrant Workmen (Regulation of Employment and Condition of Services) Act, 1979,
- The Building and Other Construction Workers Act, 1996.
- Labour Code on Occupational Safety, Health and Working Conditions issued by Government of India

**Central Procurement Cell (CPC), BHEL-PSHQ**



**Annexure-IA: General Layout Arrangement of Worker's Establishment for BHEL-Project site**



ANNEXURE - B									
ST/ ITEM NO.	EXISTING ITEM DESCRIPTION	(UOM)	QUAN- TITY	WEIGHTAGE IN % (UPTO 10 DECIMAL POINT)	REVISED ITEM DESCRIPTION	(UOM)	QUAN- TITY	WEIGHTAGE IN % (UPTO 10 DECIMAL POINT)	
103	Earth work in excavation in soft rock including weathered rock which can be excavated by means of crow bar, pick axe, pneumatic rock breaker attachment with excavator machine etc but does not require chiselling or blasting including setting out, levelling, dewatering ( <b>wherever required</b> ), dressing the sides & bottom, all lifts, ramming/compacting the excavated bottom, stacking, disposal of surplus excavated materials within a lead upto 1 Km, spreading / levelling of disposed materials etc all complete for following depths below ground level.				Earth work in excavation in soft rock including weathered rock which can be excavated by means of crow bar, pick axe, pneumatic rock breaker attachment with excavator machine etc but does not require chiselling or blasting including setting out, levelling, dewatering (wherever required but <b>excluding special type of dewatering viz. well point method</b> ), dressing the sides & bottom, all lifts, ramming/compacting the excavated bottom, stacking, disposal of surplus excavated materials within a lead upto 1 Km, spreading / levelling of disposed materials etc all complete for following depths below ground level.				
a	Depth from ground level but not exceeding 2 m	CUM	103842	0.6144550989	Depth from ground level but not exceeding 2 m	CUM	103842	0.6144550989	
b	Depth exceeding 2 m but not exceeding 4 m	CUM	45096	0.3202075451	Depth exceeding 2 m but not exceeding 4 m	CUM	45096	0.3202075451	
c	Depth exceeding 4 m but not exceeding 6 m	CUM	4618	0.0393489845	Depth exceeding 4 m but not exceeding 6 m	CUM	4618	0.0393489845	
d	Depth exceeding 6 m but not exceeding 8 m	CUM	960	0.0098108317	Depth exceeding 6 m but not exceeding 8 m	CUM	960	0.0098108317	
e	Depth exceeding 8 m but not exceeding 10 m	CUM	770	0.0090483067	Depth exceeding 8 m but not exceeding 10 m	CUM	770	0.0090483067	
105	Earth work in excavation in hard rock requiring controlled blasting including wedging, line drilling, pre shearing etc as required, setting out, levelling, dewatering ( <b>wherever required</b> ), dressing the sides & bottom, all lifts, necessary licenses/statutory clearances for blasting, supply, storage & handling of blasting materials, stacking/disposal of surplus excavated material within a lead upto 1Km, spreading / levelling of disposed materials etc all complete for following depths below ground level.				Earth work in excavation in hard rock requiring controlled blasting including wedging, line drilling, pre shearing etc as required, setting out, levelling, dewatering (wherever required but <b>excluding special type of dewatering viz. well point method</b> ), dressing the sides & bottom, all lifts, necessary licenses/statutory clearances for blasting, supply, storage & handling of blasting materials, stacking/disposal of surplus excavated material within a lead upto 1Km, spreading / levelling of disposed materials etc all complete for following depths below ground level.				
a	Depth from ground level but not exceeding 2 m	CUM	48	0.0007797358	Depth from ground level but not exceeding 2 m	CUM	48	0.0007797358	
b	Depth exceeding 2 m but not exceeding 4 m	CUM	43571	0.8582872072	Depth exceeding 2 m but not exceeding 4 m	CUM	43571	0.8582872072	
c	Depth exceeding 4 m but not exceeding 6 m	CUM	4618	0.1091264401	Depth exceeding 4 m but not exceeding 6 m	CUM	4618	0.1091264401	
d	Depth exceeding 6 m but not exceeding 8 m	CUM	100	0.0028364441	Depth exceeding 6 m but not exceeding 8 m	CUM	100	0.0028364441	
e	Depth exceeding 8 m but not exceeding 10 m	CUM	50	0.0016300964	Depth exceeding 8 m but not exceeding 10 m	CUM	50	0.0016300964	
106	Earth work in excavation in hard rock requiring chiselling including setting out, levelling, deawtering ( <b>wherever required</b> ), dressing the sides & bottom, all lifts, stacking/disposal of surplus excavated material within a lead upto 1Km, spreading / levelling of disposed materials etc all complete for following depths below ground level.				Earth work in excavation in hard rock requiring chiselling including setting out, levelling, deawtering (wherever required but <b>excluding special type of dewatering viz. well point method</b> ), dressing the sides & bottom, all lifts, stacking/disposal of surplus excavated material within a lead upto 1Km, spreading / levelling of disposed materials etc all complete for following depths below ground level.				
b	Depth exceeding 2 m but not exceeding 4 m	CUM	9478	0.2348987067	Depth exceeding 2 m but not exceeding 4 m	CUM	9478	0.2348987067	
c	Depth exceeding 4 m but not exceeding 6 m	CUM	323	0.0096061130	Depth exceeding 4 m but not exceeding 6 m	CUM	323	0.0096061130	
d	Depth exceeding 6 m but not exceeding 8 m	CUM	89	0.0031762627	Depth exceeding 6 m but not exceeding 8 m	CUM	89	0.0031762627	
405	Providing & fixing of Rebar in existing concrete surface by inserting reinforcemnet bar with Epoxy based suitable bonding compound of Hilti or equivalent make (HIT-RE-500 of Hilti or equivalent make) for interconnection of new R.C. structure with existing R.C. structure. Depth of drilled hole should be suitable to develop maximum recommended strength as per approved manufacturer's recommendation. This item includes supply of all materials including bonding chemicals, T&P required to execute the work, cost of all labour, transportation of chemical, staging to reach work place etc. all complete as directed by Engineer - in - Charge. Random Pull out non destructive test as directed by engineer shall be conducted to ensure strength of bond and same is included in this item. Reinforcement bar shall be paid separately under item no. <b>402</b> , <b>403</b> & <b>405</b> as applicable.				Providing & fixing of Rebar in existing concrete surface by inserting reinforcemnet bar with Epoxy based suitable bonding compound of Hilti or equivalent make (HIT-RE-500 of Hilti or equivalent make) for interconnection of new R.C. structure with existing R.C. structure. Depth of drilled hole should be suitable to develop maximum recommended strength as per approved manufacturer's recommendation. This item includes supply of all materials including bonding chemicals, T&P required to execute the work, cost of all labour, transportation of chemical, staging to reach work place etc. all complete as directed by Engineer - in - Charge. Random Pull out non destructive test as directed by engineer shall be conducted to ensure strength of bond and same is included in this item. Reinforcement bar shall be paid separately under <b>item no. 403</b> as applicable.				
a	12mm Reinforcement bar	Nos.	35	0.0005785506	12mm Reinforcement bar	Nos.	35	0.0005785506	
b	16mm Reinforcement bar	Nos.	48	0.0012312572	16mm Reinforcement bar	Nos.	48	0.0012312572	
c	20mm Reinforcement bar	Nos.	60	0.0021714258	20mm Reinforcement bar	Nos.	60	0.0021714258	
B506	Providing and applying WATER PROOFING ON ROOF HAVING NO STRUCTURAL SLOPE: Screed concrete mix (1:2:4) grading having minimum 25mm thickness at the lowest point of the slope shall be laid over R.C.C. slab and shall be laid as per the slope specified else- where in the specification. Top surface of grading underbed shall be finished with 15mm thick cement plaster (1:4). Over the finished surface elastomeric membrane shall be laid and top of the elastomeric membrane shall be finished with 20 mm thick cement: sand (1:4) mortar with chicken wire mesh and pressed precast concrete tiles of 20 mm thickness where applicable shall be laid over mortar at green stage. Provision for thermal expansion of roofing tiles shall be kept by providing an expansion gap in both directions filled up with polysulphide joint sealant. The expansion gap shall be provided in the cement sand mortar underbed layer also. The elastomeric membrane above mentioned for water- proofing shall be of two component, instant setting, 100% solids spraaerge, labour, materials, equipment, handling, batching, transporting, mixing, pumping, placing, levelling, vibrating, compacting, curing, testing, cleaning and rendering the exposed surface with cement sand mortar to give a smooth and even surface, maintaining and submitting records of concreting, petrographic examination and potential reactivity of aggregate as per IS-2386, Part-VII & Part-VIII etc. all complete as per specification, drawing and instructions of engineer in charge, including ultra-sonic pulse velocity (UPV) testing as directed by engineer in charge, rectification of the defects in concreting observed by UPV testing by cement/epoxy grout etc., but excluding formwork, staging, reinforcement, embedments and temperature control of concrete. Payment terms - a) After casting 75% ; b) After receipt of ultrasonic pulse velocity (UPV) test report - 25%. stud welding through metal deck sheet (shear anchor studs shall be paid separately under relevant item) Payment Terms: a) On receipt of material site - 60% b) On complete execution as per item description - 40%on - 40% ability as per EN 1026. The Partitions shall also be tested for class 5 of impact resistance when tested as per EN 13049. The Partitions shall also be tested for class 4 level of Mechanical strength when tested as per EN13115. The Partitions shall have water tightness level of 8A when tested as per EN 1027. Partitionr shall be of Makes - Saint Gobain,Acodor , IGI , Matrix ,Tata Pravesh. (Stainless steel sheet shall be paid separately) Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%(ind resistance when tested as per EN12211 and shall provide class 4 level of air permeability as per EN 1026. The door shall also be subjected to durability tests as per EN 12400 for C5 classification (200,000 cycles). The doors shall also be tested for class 5 of impact resistance when tested as per EN 13049. The doors &	SQM	15306	1.4085266386	Providing and applying WATER PROOFING ON ROOF HAVING NO STRUCTURAL SLOPE: Screed concrete mix (1:2:4) grading having minimum 25mm thickness at the lowest point of the slope shall be laid over R.C.C. slab and shall be laid as per the slope specified else- where in the specification. Top surface of grading underbed shall be finished with 15mm thick cement plaster (1:4). Over the finished surface elastomeric membrane shall be laid and top of the elastomeric membrane shall be finished with 20 mm thick cement: sand (1:4) mortar with chicken wire mesh and pressed precast concrete tiles of 20 mm thickness where applicable shall be laid over mortar at green stage. Provision for thermal expansion of roofing tiles shall be kept by providing an expansion gap in both directions filled up with polysulphide joint sealant. The expansion gap shall be provided in the cement sand mortar underbed layer also. The elastomeric membrane above mentioned for water- proofing shall be of two component, instant setting, 100% solids spray applied hybrid polyurea polyurethane liquid applied elastomeric seamless waterproofing membrane meeting the requirements of LAM as per ASTM C836 and having excellent tensile strength of 15MPa (As per ASTM 0412), elongation more than 450% (as per ASTM 0 412), tear strength of 60 Kn/m (As per ASTM 01004/ASTM 0624), adhesion to concrete of 2MPa (as per ASTM 0 4541), abrasion resistance of 60mg loss (1 Kg/CS 10 Wheels,1000 cycles - As per ASTM 04060), Shore A Hardness of 85 (As per ASTM 02240), resistance to hydrostatic pressure head of 7 Bar (As per ASTM 0 5385/ DIN 16726), puncture resistance of 1000N (As per ASTM E154), water vapour permeabil- ity of 25 mg/m2/day (As per ASTM E96), Impact re-sistance of 17 N.m (As per ASTM 02794), Low tempera- ture crack bridging ability up to 3.2mm (As per ASTM C 1305), dynamic crack bridging ability class B 3.2 (as per EN 1062-7 Method B- B3.2) with no crack observed in the coating after 20000 sinusoidal cycles, resistance to root (As per CEN TS/14416) and fire resistance of class B (As per EN 13501-1).The coating shall be applied with a total consumption of 1.6 Kg/Sqm to achieve a total system OFT of 1.5mm, thereby satisfy the requirements of LAM as per ASTM C898 and shall be applied on the entire horizontal surface extending upto 300mm above the FFL on the vertical surface as per the methodology.The application system includes base preparation of cleaning, brushing and removal of flacky materials, grouting the porous area with cementitious grout, proper covering between slab and wall junctions and priming the surface with two component solvent free epoxy primer which is applied with a consumption of 200 grams per Sqm, followed by spray application of hy- brid polyurea waterproofing coating.Protective geo textile fabric of minimum 150GSM over the entire membrane with proper overlaps shall be applied. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	SQM	15306	1.4085266386	
905	Providing and fixing single or double steel door shutters with 18 gauge M.S. sheets shutter presenting a flush surface on the outside and inside stiffened with semitubular edge and central stiffening rail which shall convey the lock including fixtures, Godrej or equivalent make mortice lock with handle on both sides, shop and final painting etc all complete. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	SQM	13	0.0042377543	Providing and fixing single or double steel door shutters of 35mm (min) thickness with 18 gauge M.S. sheets shutter presenting a flush surface on the outside and inside stiffened with semitubular edge and central stiffening rail which shall convey the lock including fixtures, Godrej or equivalent make mortice lock with handle on both sides, shop and final painting etc all complete. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	SQM	13	0.0042377543	
A906	Providing and fixing electrically operated, self operable/closing, sliding type anodized extruded aluminium doors conforming to IS:1948, IS:1949 fabricated from extruded sections of HINDALCO/JINDAL or equivalent make having minimum 3mm wall thickness as per IS:1285, IS:733 and anodized and electro color coating of required shade as per IS 1868 ( minimum anodized coating of grade AC15 ), fixed with rawl plugs, expansion fasteners,SS screws / fixing clips necessary filling of gaps at junctions, at top, bottom & sides with required PVC / neoprene felt for bi-metallic protection etc. Glazing shall be toughened sheet glass of 6mm thickness including snap fit type beading, concealed screws, fixtures, Godrej or equivalent make Mortice lock with handle on both sides, etc all complete. Aluminium section shall be smooth, free of stains, straight, mitred & jointed mechanically wherever required. (Glazing shall be paid separately) Payment Terms: a) On receipt of material at site - 60% b) On complete execution as parge, labour, materials,	SQM	125	0.0662897742	Providing and fixing electrically operated, self operable/closing, sliding type anodized extruded aluminium doors conforming to IS:1948, IS:1949 fabricated from extruded sections of HINDALCO/JINDAL or equivalent make having minimum 3mm wall thickness as per IS:1285, IS:733 and anodized and electro color coating of required shade as per IS 1868 ( minimum anodized coating of grade AC15 ), fixed with rawl plugs, expansion fasteners,SS screws / fixing clips necessary filling of gaps at junctions, at top, bottom & sides with required PVC / neoprene felt for bi-metallic protection etc. Glazing shall be toughened sheet glass of 6mm thickness including snap fit type beading, concealed screws, fixtures, Godrej or equivalent make Mortice lock with handle on both sides, etc all complete. Aluminium section shall be smooth, free of stains, straight, mitred & jointed mechanically wherever required. (Glazing shall be paid separately) Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	SQM	125	0.0662897742	
909	Providing and fixing anodised aluminium work of Jindal, Hindalco or other equivalent approved make for door frames, windows, ventilators, partitions, railing etc with extruded standard tubular and other sections including all fittings & fixtures and accessories of approved make conforming to IS733 and IS1285, anodised and electro color dyed to required shade according to IS 1868 (minimum anodic coating of grade AC15), fixed with rawl plugs, expansion fasteners, SS screws or with fixing clips, including necessary filling of gaps at junctions, at top, bottom and sides with required PVC/neoprene felt for bi-metalic protection etc. including preperation of working drawings, aluminium cleat angle, aluminium snap-on-beading for glazing/panelling, stair case tread nosing, with all fittings and fixtures (like tower bolts, handles, door stopper with rubber shoes, 'L' drops, stays, floor springs, hydraulic door closures etc.), CP brass/stainless steel screws, providing and fixing hinges/pivots, and making provision fortion - 40%zinc alloy coating to class AZ150 on both sides, both sheet shall be permanently coated with silicon modified polyster (SMP with silicon content of 30% to 50%) paint of minimum 20 micron DFT on exposed surface on 5 microns (min.) epoxy primer/phosphate primer coat and 10 micron (min.) SMP on 5 micron (min.) epoxy primer/phosphate primer on other face, SM	Kg	27,050	0.6748611094	Providing and fixing anodised aluminium work of Jindal, Hindalco or other equivalent approved make for door frames, windows, ventilators, partitions, railing etc with extruded standard tubular and other sections including all fittings & fixtures and accessories of approved make conforming to IS733 and IS1285, anodised and electro color dyed to required shade according to IS 1868 (minimum anodic coating of grade AC15), fixed with rawl plugs, expansion fasteners, SS screws or with fixing clips, including necessary filling of gaps at junctions, at top, bottom and sides with required PVC/neoprene felt for bi-metalic protection etc. including preperation of working drawings, aluminium cleat angle, aluminium snap-on-beading for glazing/panelling, stair case tread nosing, with all fittings and fixtures (like tower bolts, handles, door stopper with rubber shoes, 'L' drops, stays, floor springs, hydraulic door closures etc.), CP brass/stainless steel screws, providing and fixing hinges/pivots, and making provision for fixing of fitting wherever required including cost of PVC/neoprene gasket, all complete as per drawing, specification and instructions of engineer in charge (Glazing and panelling shall be paid seperately).Weight of aluminium section only shall be measure. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	Kg	27,050	0.6748611094	

ANNEXURE - B									
ST/ ITEM NO.	EXISTING ITEM DESCRIPTION	(UOM)	QUAN- TITY	WEIGHTAGE IN % (UPTO 10 DECIMAL POINT)	REVISED ITEM DESCRIPTION	(UOM)	QUAN- TITY	WEIGHTAGE IN % (UPTO 10 DECIMAL POINT)	
A910	Providing, fabricating, designing, supplying and fixing of Aluminium composite panel cladding (ACP) in pan shape in solid or metallic colour of approved shades made out of 4mm thick aluminium composite panel (weight of panel should be 7.5 kg/sqm) material consisting of 3mm thick FR grade Class A2 as per EN 13501,mineral core sandwiched between two Aluminium sheets (each 0.5mm thick).The aluminium composite panel cladding sheet shall be coil coated, with Kynar 500 based PVDF conforming to AAMA 2605 or Lumiflon based fluoropolymer resin coating of approved colour and shade on face # 1 and polymer (Service) coating on face # 2 as specified using stainless steel screws, nuts, bolts, washers, cleats, weather silicone sealant, backer rods etc. The top coated surface of ACP shall comply with the "specification for coated coil for the exterior building application" issued by ECCA (European Coil Coating Association). The aluminium composite panel top and bottom skin should conform to Aluminium Alloy 5005 (AlMg 1)tion - 40%zinc alloy coating to class AZ150 on both sides, both sheet shall be permanently coated with silicon modified polyester (SMP with silicon content of 30% to 50%) paint of minimum 20 micron DFT on exposed surface on 5 microns (min.) epoxy primer/phosphate primer coat and 10 micron (min.) SMP on 5 micron (min.) epoxy primer/phosphate primer on other face, SMP paint system shall be of industrial finish of product type 4 of AS/NZS 2728,roughed sheet shall be of approved profile, sectional properties, (suitable for the specified loading / deflection and purlins / runner spacing), colour and shade, at all levels, including all labour, materials, equipment, handling, transportation, special coated fastener conforming to corrosion resistant Class 3 of AS3566 and tested for 1000 hours salt spray test, fixing insulated sandwiched metal sheet with the structural members below for supporting the sheeting system, scaffolding, equipment, end and side laps, cutting of openings, preparation of working drawings, testing, etc., all complete, as per specifications. Sealant used for cladding shall be butyl based, two parts poly sulphide or equivalent approved, non stainless material and be flexible enough not to interface with fit of the sheets. Coated surface shall be provided with a protected guard film (polyethylene) of about 40 microns to avoid any damage to the coating during handling. Overlap shall be min. 100 mm or as specified by manufacturer. ,Tata Pravesh. (Stainless steel sheet shall be paid separately) Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%ind resistance when tested as per EN12211 and shall provide class 4 level of air permeability as per EN 1026. The door shall also be subjected to durability tests as per EN 12400 for C5 classification (200,000 cycles). The doors shall also be tested for class 5 of impact resistance when tested as per EN 13049. The doors & partition shall also be tested for class 4 level of Mechanical strength when tested as per EN13115. The door shall have water tightness level of 8A when tested as per EN 1027. Fire Rated Door (swing / sliding) shall be of Makes- Saint Gobain, Acodor, IGI, Matrix. all complete as per specification.(Item includes the cost of glazing) Design,Shop drawings along with hardwares for the item with all construction and anchoring details, etc.along with fire rating test reports shall be got approved before execution. nt, scaffolding, approach to all height, material handling, transportation, labour, T&P, preparation of working drawings etc.all complete as per drawing, specification & instructions of engineer in charge. Measurement of payment shall be outer finished area of ACP panel.The contractor shall provide the material cutsheet/ declaration from manufacturer mentioning the recycled content used in maufacturer of ACP. Payment Terms:	SQM	3,955	0.6239552351	Providing, fabricating, designing, supplying and fixing of Aluminium composite panel cladding (ACP) in pan shape in solid or metallic colour of approved shades made out of 4mm thick aluminium composite panel (weight of panel should be 7.5 kg/sqm) material consisting of 3mm thick FR grade Class A2 as per EN 13501,mineral core sandwiched between two Aluminium sheets (each 0.5mm thick).The aluminium composite panel cladding sheet shall be coil coated, with Kynar 500 based PVDF conforming to AAMA 2605 or Lumiflon based fluoropolymer resin coating of approved colour and shade on face # 1 and polymer (Service) coating on face # 2 as specified using stainless steel screws, nuts, bolts, washers, cleats, weather silicone sealant, backer rods etc. The top coated surface of ACP shall comply with the "specification for coated coil for the exterior building application" issued by ECCA (European Coil Coating Association). The aluminium composite panel top and bottom skin should conform to Aluminium Alloy 5005 (AlMg 1) marine grade series and H 22/24 temper with mechanical properties confirming to EN 485-2 standard. The ACP product must conform to either BS 476 part 6 & 7 or ASTM E 84 standards along with EN-13501-1. The manufacturer must furnish Class 1A certificate for this ACP produced in the plant from which it is going to be supplied. The panel shall be designed for 12mm groove in horizontal & in verticals with close joint system. Vertical & Horizontal groove shall be filled by non-staining high performance weather sealant. ACP panel shall have sub frame all around panel and aluminium stiffener profile as per structural requirements. The finished surface of ACP shall be protected with a self-adhesive (Rubber based) peel off foil with 70 microns thickness white or black, tested to withstand up to 6 months' exposure to local weather condition without losing the original peel off characteristic or causing stain or other damages on the coated surface of the aluminium composite panel. Installation of ACP Coping/facia at terrace level sealing the top gap of the parapet wall and ACP Panel shall have GI stiffeners below with required aluminium grid work with necessary MS HDG / aluminium alloy brackets & SS fasteners.2nd barrier of 1mm thk GI sheet laid continuously below the coping to seal the parapet wall. Overlap of GI sheet shall be properly sealed with weather sealant, All shade approval shall be as per Architect's Approval.as per approved sample from Alucobond Plus, Aludecor,Alpolic or equivalent. The system shall be designed to withstand a wind pressure of 200kg/Sqm or as per design requirement and shall be fixed to the Masonry/RC walls or aluminium frame with necessary clamps, brackets and anchor fasteners etc. All clamps and brackets shall be Hot dip galvanized minimum 80 microns thick and shall conform to IS: 4759-1996. The extruded aluminium section shall be anodized in approved colour with a anodic coating of minimum 20 microns. Extruded section shall be 6063 T5 or T6 alloy conforming to ASTM B221. Any other fastening straps, nuts, bolts, rivets, washers, etc. shall be in stainless steel SS316 grade. EPDM gaskets, open cell polyethylene backer rods, weather sealant etc. shall be provided as per requirement. Item shall include aluminium base frame with all fixing arrangements to wall/RC members, fastening material and hardware(festering straps, nuts, bolts, rivets, washers etc.). EPDM gaskets, open cell polyethylene backer rods, weather sealant, scaffolding, approach to all height, material handling, transportation, labour, T&P, preparation of working drawings etc.all complete as per drawing, specification & instructions of engineer in charge. Measurement of payment shall be outer finished area of ACP panel.The contractor shall provide the material cutsheet/ declaration from manufacturer mentioning the recycled content used in maufacturer of ACP. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	SQM	3,955	0.6239552351	
915	Providing, fixing and fitting of glazing of first grade class in steel/aluminium/wooden frames, where ever required, cleaning after fixing including hardware, gaskets, clips, beadings etc. all complete. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%				Providing, fixing and fitting of glazing of first grade class in steel/aluminium/wooden frames, where ever required, cleaning after fixing including hardware, gaskets, clips, beadings etc. all complete. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%				
c	5.5 mm thick clear float glass	SQM	250	0.0180284079	6 mm thick clear float glass	SQM	250	0.0180284079	
A1013	Providing and laying Autoclave Areated concrete (AAC) blocks having dimensions of 625 mm x 250 mm, thickness ranging from 100 mm to 300 mm conforming to I.S. :2185(part III) in walls, chambers etc. at depths, places and position above plinth, including horizontal and vertical joint thickness approximately 10 mm ,raking out joints, curing, scaffolding etc. complete excluding plastering and painting all complete as per specification and drawing. The jointing cement sand mortar in the composition of 1: 6 (Cement: sand) shall be used with suitable plasticizer(optional). Sand having modulus of fineness 1.1 shall be used. The horizontal and vertical joint thickness shall be approximately 10 mm. In case of partition walls (100 mm /125 mm thk.) the joint reinforcement i.e. 1 number of 6-8 mm diameter bars shall be placed at every alternate course to be anchored properly with the main structure. All other structural requirements like stiffening of masonry, joint reinforcement etc. in the AAC masonry wor-EU Certification. The glass should be compliant to class 1(B)1 category of Impact Resistance as per EN 12600. The glass should be held in its place with the help of 1.6 mm GI beading and a spec	CUM	990	0.2116819946	Providing and laying Autoclave Areated concrete (AAC) blocks having dimensions of 625 mm x 250 mm, thickness ranging from 100 mm to 300 mm conforming to I.S. :2185(part III) in walls, chambers etc. at depths, places and position above plinth, including horizontal and vertical joint thickness approximately 10 mm ,raking out joints, curing, scaffolding etc. complete excluding plastering and painting all complete as per specification and drawing. The jointing cement sand mortar in the composition of 1: 6 (Cement: sand) shall be used with suitable plasticizer(optional). Sand having modulus of fineness 1.1 shall be used. The horizontal and vertical joint thickness shall be approximately 10 mm. In case of partition walls (100 mm /125 mm thk.) the joint reinforcement i.e. 1 number of 6-8 mm diameter bars shall be placed at every alternate course to be anchored properly with the main structure. All other structural requirements like stiffening of masonry, joint reinforcement etc. in the AAC masonry work strictly be carried out as per instructions laid down in IS 6041 - 1985, IS - 1905. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	CUM	990	0.2116819946	
A1519	Designing, providing and fixing Factory made (Continuous Line) prefabricated sandwiched Permanent colour coated metal cladding comprising top sheet as troughed(minimum depth of trough shall be 30 mm) permanently colour coated sheet & bottom sheet as plain permanently colour coated for covering of exposed metal/concrete / brick surfaces with insulation shall be of Polyurethane type of minimum 50mm thick (excluding trough). The polyurethane shall be Chlorofluorocarbon (CFC) free and self-extinguishing and shall conform to IS 12436: 1988. It shall have Modular Density 40 +/- 2 Kg/m3 and Thermal Conductivity @ 10 Deg.C 0.017 - 0.020 W/M 0k, Water absorption (% by vol) 3.1, Critical Oxygen Index 23 and Compressive Strength 1.2 Kg/sq.cm, sandwiched between the two sheets, each sheet shall be high strength tensile steel sheet 0.5mm bare metal thickness (minimum) of YS350 as per IS 15961 /grade G350 as per AS1397 / grade SS340 class 4 as per ASTM A792M / grade S350GD as per EN 10326 with zinc coating to class Z 275 / aluminium-zinc alloy coating to class AZ150 on both sides, both sheet shall be permanently coated with silicon modified polyester (SMP with silicon content of 30% to 50%) paint of minimum 20 micron DFT on exposed surface on 5 microns (min.) epoxy primer/phosphate primer coat and 10 micron (min.) SMP on 5 micron (min.) epoxy primer/phosphate primer on other face, SMP paint system shall be of industrial finish of product type 4 of AS/NZS 2728,roughed sheet shall be of approved profile, sectional properties, (suitable for the specified loading / deflection and purlins / runner spacing), colour and shade, at all levels, including all labour, materials, equipment, handling, transportation, special coated fastener conforming to corrosion resistant Class 3 of AS3566 and tested for 1000 hours salt spray test, fixing insulated sandwiched metal sheet with the structural members below for supporting the sheeting system, scaffolding, equipment, end and side laps, cutting of openings, preparation of working drawings, testing, etc., all complete, as per specifications. Sealant used for cladding shall be butyl based, two parts poly sulphide or equivalent approved, non stainless material and be flexible enough not to interface with fit of the sheets. Coated surface shall be provided with a protected guard film (polyethylene) of about 40 microns to avoid any damage to the coating during handling. Overlap shall be min. 100 mm or as specified by manufacturer.	SQM	3,225	0.2987044740	Designing, providing and fixing Factory made (Continuous Line) prefabricated sandwiched Permanent colour coated metal cladding comprising top sheet as troughed(minimum depth of trough shall be 30 mm) permanently colour coated sheet & bottom sheet as plain permanently colour coated for covering of exposed metal/concrete / brick surfaces with insulation shall be of Polyurethane type of minimum 50mm thick (excluding trough). The polyurethane shall be Chlorofluorocarbon (CFC) free and self-extinguishing and shall conform to IS 12436: 1988. It shall have Modular Density 40 +/- 2 Kg/m3 and Thermal Conductivity @ 10 Deg.C 0.017 - 0.020 W/M 0k, Water absorption (% by vol) 3.1, Critical Oxygen Index 23 and Compressive Strength 1.2 Kg/sq.cm, sandwiched between the two sheets, each sheet shall be high strength tensile steel sheet 0.5mm bare metal thickness (minimum) of YS350 as per IS 15961 /grade G350 as per AS1397 / grade SS340 class 4 as per ASTM A792M / grade S350GD as per EN 10326 with zinc coating to class Z 275 / aluminium-zinc alloy coating to class AZ150 on both sides, both sheet shall be permanently coated with silicon modified polyester (SMP with silicon content of 30% to 50%) paint of minimum 20 micron DFT on exposed surface on 5 microns (min.) epoxy primer/phosphate primer coat and 10 micron (min.) SMP on 5 micron (min.) epoxy primer/phosphate primer on other face, SMP paint system shall be of industrial finish of product type 4 of AS/NZS 2728,roughed sheet shall be of approved profile, sectional properties, (suitable for the specified loading / deflection and purlins / runner spacing), colour and shade, at all levels, including all labour, materials, equipment, handling, transportation, special coated fastener conforming to corrosion resistant Class 3 of AS3566 and tested for 1000 hours salt spray test, fixing insulated sandwiched metal sheet with the structural members below for supporting the sheeting system, scaffolding, equipment, end and side laps, cutting of openings, preparation of working drawings, testing, etc., all complete, as per specifications. Sealant used for cladding shall be butyl based, two parts poly sulphide or equivalent approved, non stainless material and be flexible enough not to interface with fit of the sheets. Coated surface shall be provided with a protected guard film (polyethylene) of about 40 microns to avoid any damage to the coating during handling. Overlap shall be min. 100 mm or as specified by manufacturer. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	SQM	3,225	0.2987044740	
A1601	Providing and fixing 12.5 mm thick tapered/square edge glass fibre reinforced gypsum board false ceiling conforming to IS : 2095 having fine texture finish, including providing and fixing of frame work at all levels, for all kind of work, consisting of light weight galvanised steel member (minimum 0.8 mm thick and galvanised as per IS: 277) having maximum grid size of 1200 mm x 600 mm for supporting panels of specified size, suspended from RCC structural steel or catwalkway grid above, with 4 mm (minimum) galvanised wires (rods), with special height adjustment clips, providing angle section of minimum 25 mm width along the perimeter of ceiling, supporting grid system (minimum 0.8 mm thick and galvanised as per IS: 277 ), expansion fasteners for suspension arrangement from RCC, providing openings for AC ducts, return air grills, light fixtures, etc., all complete. (but excluding the cost of catwalkway grid) all complete as per drawings, specification and instructions of the engineer in charge. Payment Terms: aluminium-zinc alloy coating to class AZ150 on both sides, both sheet shall be permanently coa	SQM	333	0.0174346566	Providing and fixing 12.5 mm thick tapered/square edge glass fibre reinforced gypsum board false ceiling conforming to IS : 2095 having fine texture finish, including providing and fixing of frame work at all levels, for all kind of work, consisting of light weight galvanised steel member (minimum 0.8 mm thick and galvanised as per IS: 277) having maximum grid size of 1200 mm x 600 mm for supporting panels of specified size, suspended from RCC structural steel or catwalkway grid above, with 4 mm (minimum) galvanised wires (rods), with special height adjustment clips, providing angle section of minimum 25 mm width along the perimeter of ceiling, supporting grid system (minimum 0.8 mm thick and galvanised as per IS: 277 ), expansion fasteners for suspension arrangement from RCC, providing openings for AC ducts, return air grills, light fixtures, etc., all complete. (but excluding the cost of catwalkway grid) all complete as per drawings, specification and instructions of the engineer in charge. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	SQM	333	0.0174346566	
1602	Providing, fixing and laying light weight mineral fiber tile false ceiling of minimum thickness 15 mm and exposed surface semi-perforated with depth of perforation as 4 mm and humid resistance of 95% RH and fire performance of class 0/1 as per BS 476 with metal suspension grid system with galvanized Tees of section 24 X 38 mm for main runners of approved colour and make as per specification including 50mm thick mineral wool insulation (density48kg/cum) as per IS:8183 bound in polythene bags on top of panels. Additional hangers and height adjustment clips shall be provided for return air grills, light fixtures. A.C. ducts etc. suitable M.S. channel (minimum MC 75 @ 1.2m) grid shall also beprovided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. complete with cut-outs etc.The size of tiles shall be 600 X 600 mm or 600 X 1200 mm. Required MS channel shall be measured & paid extra under respective item unit rate. Payment Terms: a) On receiptment Terms: a) On receipt of material at site - 60% b) On complete execution as p	SQM	20	0.0009414093	Providing, fixing and laying light weight mineral fiber tile false ceiling of minimum thickness 15 mm and exposed surface semi-perforated with depth of perforation as 4 mm and humid resistance of 95% RH and fire performance of class 0/1 as per BS 476 with metal suspension grid system with galvanized Tees of section 24 X 38 mm for main runners of approved colour and make as per specification including 50mm thick mineral wool insulation (density48kg/cum) as per IS:8183 bound in polythene bags on top of panels. Additional hangers and height adjustment clips shall be provided for return air grills, light fixtures. A.C. ducts etc. suitable M.S. channel (minimum MC 75 @ 1.2m) grid shall also beprovided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. complete with cut-outs etc.The size of tiles shall be 600 X 600 mm or 600 X 1200 mm. Required MS channel shall be measured & paid extra under respective item unit rate. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	SQM	20	0.0009414093	
A1602	Providing, fixing and laying light weight mineral fiber tile false ceiling of minimum thickness 15 mm and exposed surface semi-perforated with depth of perforation as 4 mm and humid resistance of 95% RH and fire performance of class 0/1 as per BS 476 with metal suspension grid system with galvanized Tees (silhouette T -profile) of section 24 X 38 mm for main runners of approved colour and make as per specification including 50mm thick mineral wool insulation (density48kg/cum) as per IS:8183 bound in polythene bags on top of panels. Additional hangers and height adjustment clips shall be provided for return air grills, light fixtures. A.C. ducts etc. suitable M.S. channel (minimum MC 75 @ 1.2m) grid shall also beprovided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. complete with cut-outs etc.The size of tiles shall be 600 X 600 mm or 600 X 1200 mm. Required MS channel shall be measured & paid extra under respective item unit rate.(Allaluminium-zinc alloy coating to class AZ150 on both sides, both sheet shall be permanently coated with silicon modified polyester (SMP with silicon content of 30% to 50%) paint of minimum 20 micron DFT on exposed surface on 5 microns (min.) epoxy primer/phosphate primer coat and 10 micron (min.) SMP on 5 micron (min.) epoxy primer/phosphate p	SQM	2,426	0.1238340553	Providing, fixing and laying light weight mineral fiber tile false ceiling of minimum thickness 15 mm and exposed surface semi-perforated with depth of perforation as 4 mm and humid resistance of 95% RH and fire performance of class 0/1 as per BS 476 with metal suspension grid system with galvanized Tees (silhouette T -profile) of section 24 X 38 mm for main runners of approved colour and make as per specification including 50mm thick mineral wool insulation (density48kg/cum) as per IS:8183 bound in polythene bags on top of panels. Additional hangers and height adjustment clips shall be provided for return air grills, light fixtures. A.C. ducts etc. suitable M.S. channel (minimum MC 75 @ 1.2m) grid shall also beprovided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. complete with cut-outs etc.The size of tiles shall be 600 X 600 mm or 600 X 1200 mm. Required MS channel shall be measured & paid extra under respective item unit rate.(All mineral fiber board to be used should be with appropriate % of recycled content. The contractor to provide the material cutsheet/ declaration from manufacturer mentioning the recycled content used in manufacturing of board to be used) Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	SQM	2,426	0.1238340553	
A1603	Providing and fixing permanently colour coated aluminium false ceiling of approved colour of Luxalon Hunter douglas, or approved equivalent with corrosion resistant aluminium alloy panels of size 600 mm x 600 mm and 0.6 mm thk. with clip on torsion spring system, perforation patterns in combination with built in nonwoven tissue, acoustic fleece for providing good acoustic properties and installed with silhouette T-Grid (of profile 24 mm) in same or contrasting colours or with 6 mm recess joints. The whole system shall be level adjusting arrangement and shall be suspended as per manufacturer. Additional hangers and height adjustment clips shall be provided for return air grills, light fixtures. A.C. ducts etc. all complete. Suitable M.S. channel grid with minimum MC 75 at minimum grid distance 1.2m c/c shall also be provided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. ( Materials for structural platform grid made up of MS Channels/ Beamsym Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%r coat of minimum 5 micron(nominal) and	SQM	2,430	0.2802279361	Providing and fixing permanently colour coated aluminium false ceiling of approved colour of Luxalon Hunter douglas, or approved equivalent with corrosion resistant aluminium alloy panels of size 600 mm x 600 mm and 0.6 mm thk. with clip on torsion spring system, perforation patterns in combination with built in nonwoven tissue, acoustic fleece for providing good acoustic properties and installed with silhouette T-Grid (of profile 24 mm) in same or contrasting colours or with 6 mm recess joints. The whole system shall be level adjusting arrangement and shall be suspended as per manufacturer. Additional hangers and height adjustment clips shall be provided for return air grills, light fixtures. A.C. ducts etc. all complete. Suitable M.S. channel grid with minimum MC 75 at minimum grid distance 1.2m c/c shall also be provided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. ( Materials for structural platform grid made up of MS Channels/ Beams / Angles shall be paid separately.) Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	SQM	2,430	0.2802279361	

ANNEXURE - B								
ST/ ITEM NO.	EXISTING ITEM DESCRIPTION	(UOM)	QUAN- TITY	WEIGHTAGE IN % (UPTO 10 DECIMAL POINT)	REVISED ITEM DESCRIPTION	(UOM)	QUAN- TITY	WEIGHTAGE IN % (UPTO 10 DECIMAL POINT)
A1849	Providing engineering consultancy services for Architectural design & drawings of CCR (Central control room in powerhouse building) in harmony with the overall plant and presented in the form of presentation drawings, including 3-D perspective rendered views,panoramic views, walkthrough, with color schemes, lighting design, as per specification including preparation of integrated services drawings in co-ordination with electrical, HVAC & fire systems etc. and taking approval on drawings from BHEL/customer (All complete).Perspective coloured views shall be submitted in Hard Copy in Laminated A-1 Size (Two Numbers) as required in the desired format. Structural design & drawing, of buildings & foundations are in scope of BHEL and not included in scope of bidder.The scope of bidder shall include coordination with respect to HVAC, electrical & fire fighting systems & space requirements for electrical facilities in consultation with BHEL/customer. Engineering services of acoustic design, interior architecture, Paluminium-zinc alloy coating to class AZ150 on both sides, both sheet shall be permanently coated with silicon modified polyester (SMP with silicon content of 30% to 50%) paint of minimum 20 micron DFT on exposed surface on 5 microns (min.) epoxy primer/phosphate primer coat and 10 micron (min.) SMP on 5 micron (min.) epoxy primer/phosphate primer on other face, SMP paint system shall be of industrial finish of product type 4 of AS/NZS 2728,roughed sheet shall be of approved profile, sectional properties, (suitable for the specified loading / deflection and purlins / runner spacing), colour and shade, at all levels, including all labour, materials, equipment, handl	LS	1	0.1150185329	Providing engineering consultancy services for Architectural design & drawings of CCR (Central control room in powerhouse building) in harmony with the overall plant and presented in the form of presentation drawings, including 3-D perspective rendered views,panoramic views, walkthrough, with color schemes, lighting design, as per specification including preparation of integrated services drawings in co-ordination with electrical, HVAC & fire systems etc. and taking approval on drawings from BHEL/customer (All complete).Perspective coloured views shall be submitted in Hard Copy in Laminated A-1 Size (Two Numbers) as required in the desired format. Structural design & drawing, of buildings & foundations are in scope of BHEL and not included in scope of bidder.The scope of bidder shall include coordination with respect to HVAC, electrical & fire fighting systems & space requirements for electrical facilities in consultation with BHEL/customer. Engineering services of acoustic design, interior architecture, PA system, planning for firefighting system as per inputs provided by BHEL, external & internal finishes, plumbing & sanitation, water supply system, false ceiling, internal partitions, reception, glazing,etc. are also included in this item. Any addition/changes in design as per customer requirement during detailed engineering stage, no extra payment is admissible. All design and drawings shall be submitted in soft and hard copies along with 3-D model. Bidder shall also provide BOQ & specification of finishing items in a generalized fashion in consultation with BHEL. Civil design wing, during detailed engineering stage for further sub-contracting of finishing works.	LS	1	0.1150185329
A2003	Supplying and erecting in position 2.4 m high PVC coated G.I. welded wire mesh fencing of minimum 4 mm diameter (including PVC coating) of mesh size 75mmX75mm including providing concertina of 600 mm height over chain link fencing.The diameter of the steel wire for chain link fence (excluding PVC coating) shall not be less than 2.5 mm. The PVC coated chain link will be stretched by the clips at 0.5m intervals to three strands of galvanised high tensile spring steel wire (HTSSW) of 2.5 mm diameter interwoven with chain link wire mesh and kept under tension which in turn are attached to the fence post with security nuts and bolts. On every fourth post a clamping strip will be threaded through the links of chain link and bolted to the fence post with the help of security nuts and bolts.Concertina of height of 600 mm at top of chain link fencing shall be provided with all accessories. Concertina shall be of high tensile serrated galvanised wire (HTSW) with wire diameter of 2.5mm stretched to 6m and attached toaluminium-zinc alloy coating to class AZ150 on both sides, both sheet shall be permanently coated with silicon modified polyester (SMP with silicon content of 30% to 50%) paint of minimum 20 micron DFT on exposed surface on 5 microns (min.) epoxy primer/phosphate primer coat and 10 micron (min.) SMP on 5 micron (min.) epoxy primer/phosphate primer on other face	RM	780	0.0777347768	Supplying and erecting in position 2.4 m high PVC coated G.I. welded wire mesh fencing of minimum 4 mm diameter (including PVC coating) of mesh size 75mmX75mm including providing concertina of 600 mm height over chain link fencing.The diameter of the steel wire for chain link fence (excluding PVC coating) shall not be less than 2.5 mm. The PVC coated chain link will be stretched by the clips at 0.5m intervals to three strands of galvanised high tensile spring steel wire (HTSSW) of 2.5 mm diameter interwoven with chain link wire mesh and kept under tension which in turn are attached to the fence post with security nuts and bolts. On every fourth post a clamping strip will be threaded through the links of chain link and bolted to the fence post with the help of security nuts and bolts.Concertina of height of 600 mm at top of chain link fencing shall be provided with all accessories. Concertina shall be of high tensile serrated galvanised wire (HTSW) with wire diameter of 2.5mm stretched to 6m and attached to two strands of galvanised HTSSW of 2.5 mm diameter by means of clips at 1m intervals. These two HTSSW strands will be attached to the fence posts with 12 mm security fasteners etc. all complete. (Structural post shall be separately under ST No. 2007) Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	RM	780	0.0777347768
2114	Providing & fixing in position P.V.C. water tank of Syntex or approved equivalent including making all necessary inlet & outlet pipes, fixture, ball cocks, valves etc all complete for following capacities. <b>GI pipes shall be paid separately under ST No. 2105.</b>				Providing & fixing in position P.V.C. water tank of Syntex or approved equivalent including making all necessary inlet & outlet pipes, fixture, ball cocks, valves etc all complete for following capacities.			
a	500 litres capacity	NOS	10	0.0021099632	500 litres capacity	NOS	10	0.0021099632
b	1000 litres capacity	NOS	5	0.0021099632	1000 litres capacity	NOS	5	0.0021099632
c	2000 litres capacity	NOS	2	0.0016879705	2000 litres capacity	NOS	2	0.0016879705
d	5000 litres capacity	NOS	3	0.0063297750	5000 litres capacity	NOS	3	0.0063297750
AA2301	Taking delivery of steel from BHEL stores / store yard, loading, transportation, unloading, pre-assembly and erection of shop fabricated Medium and High Tensile structural steel (Grade designation E350/E410 conforming to IS 2062) with rolled section / built up section / combination of both conforming to IS:2062, chequered plate conforming to IS: 3052, etc. in columns, beams, gantry girders, roof trusses, portals, laced purlins, struts, monorails, galleries, stiffeners, wall beams, sheeting runners, brackets, stub columns, bracings, cleats, trestles, base plates, splice plates, chequered plate flooring, ladders, stairs, stringers, toe-guard/kick plate, etc., alignment, erection bolts & nuts (weight of erection bolts shall be paid seperately), assembly, edge preparation, erection scheme, protection against damage in transit, stability of structures, installation of temporary structures, setting column bases, rectification (if any), dismantling and removal of all temporary structures (weight of temporary structuyment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%r coat of minimum 5 micron(nominal) and minium 10 micron (nominal) SMP or super polyester paint over primer coat of minum 5 micron (nominal) on other face. SMP and polyster paint system sahill be of idutrial finish of product type 4 of AS/NZS 2728, including fixing of sheet to top flange of beam	MT	16,206	10.2730610919	Taking delivery of steel from BHEL stores / store yard, loading, transportation, unloading, pre-assembly and erection of shop fabricated Medium and High Tensile structural steel (Grade designation E350/E410 conforming to IS 2062) with rolled section / built up section / combination of both conforming to IS:2062, chequered plate conforming to IS: 3052, etc. in columns, beams, gantry girders, roof trusses, portals, laced purlins, struts, monorails, galleries, stiffeners, wall beams, sheeting runners, brackets, stub columns, bracings, cleats, trestles, base plates, splice plates, chequered plate flooring, ladders, stairs, stringers, toe-guard/kick plate, etc., alignment, erection bolts & nuts (weight of erection bolts shall be paid seperately), assembly, edge preparation, erection scheme, protection against damage in transit, stability of structures, installation of temporary structures, setting column bases, rectification (if any), dismantling and removal of all temporary structures (weight of temporary structures not payable) including welding electrodes and other consumables, etc. The work shall be satisfactorily completed with required tightening of HSFG bolts along with DTI (DIRECT TENSION INDICATOR). (Shop fabricated steel shall be issued by BHEL free of cost) Payment Terms: 1. On completion of erection - 60% 2. On completion of alignment, welding, etc. complete as per description/specification - 40%	MT	16,206	10.2730610919
B2301	Fabrication (Site Welded as per specification), transportation from fabrication yard and erection of Medium and High Tensile structural steel (Grade designation E250 conforming to IS 2062) with rolled section / built up section / combination of both conforming to IS:2062, pipes conforming to IS:1161/ IS:1239, chequered plate conforming to IS: 3052, mild steel rounds, monorails, stays, safety chains, ladders, etc. in columns, beams, gantry girders, bunkers, silos, hoppers, roof trusses, portals, laced purlins, space frames, hangers, struts, monorails, galleries, stiffeners, wall beams, sheeting runners, brackets, stub columns, bracings, cleats, trestles, base plates, splice plates, chequered plate flooring, decking and seal plates, steel frame grid over false ceiling, walkway platforms, ladders, stairs, stringers, treads, landings, hand-rails etc. including connection design & preparation of fabrication drgs (Using 3D model software like Tekla or equivalent), collection of steel from stores, straightening, aluminium-zinc alloy coating to class AZ150 on both sides, both sheet shall be permanently coated with silicon modified polyester (SMP with silicon content of 30% to 50%) paint of minimum 20 micron DFT on exposed surface on 5 microns (min.) epoxy primer/phosphate primer coat and 10 micron (min.) SMP on 5 micron (min.) epoxy primer/phosphate primer on other face, SMP paint system shall be of industrial finish of product type 4 of AS/NZS 2728,roughed sheet shall be of approved profile, sectional properties, (suitable for the specified loading / deflection and purlins / runner spacing), colour and shade, at all levels, including all labour, materials, equipment, handling, transportation, special coated fastener conforming to corrosion resistant Class 3 of AS3566 and tested for 1000 hours salt spray test, fixing insulated sandwiched metal sheet with the structural members below for supporting the sheeting system, scaffolding, equipment, end and side laps, cutting of openings, preparation of working drawings, testing, etc., all complete, as per specifications. Sealant used for cladding shall be butyl based, two parts poly sulphide or equivalent approved, non stainless material and be flexible enough not to interface with fit of the sheets. Coated surface shall be provided with a protected guard film (polyethylene) of about 40 mic	MT	5,294	6.2867686145	Fabrication (Site Welded as per specification), transportation from fabrication yard and erection of Medium and High Tensile structural steel (Grade designation E250 conforming to IS 2062) with rolled section / built up section / combination of both conforming to IS:2062, pipes conforming to IS:1161/ IS:1239, chequered plate conforming to IS: 3052, mild steel rounds, monorails, stays, safety chains, ladders, etc. in columns, beams, gantry girders, bunkers, silos, hoppers, roof trusses, portals, laced purlins, space frames, hangers, struts, monorails, galleries, stiffeners, wall beams, sheeting runners, brackets, stub columns, bracings, cleats, trestles, base plates, splice plates, chequered plate flooring, decking and seal plates, steel frame grid over false ceiling, walkway platforms, ladders, stairs, stringers, treads, landings, hand-rails etc. including connection design & preparation of fabrication drgs (Using 3D model software like Tekla or equivalent), collection of steel from stores, straightening, cutting, bending, rolling, grinding, machining, drilling, welding with electrodes and other consumables, erection, alignment, erection bolts & nuts (weight of erection bolts, nuts and welds not payable), assembly, edge preparation, preheating (min preheat and interpass temperature of 20o C for welding over 20 mm and upto 40 mm & 66o C for welding over 40 mm and upto 63 mm & 110o C for thickness over 63 mm & use of low hydrogen/ radiogenic electrodes), post heating, testing of welders, inspection of welds, visual inspection, non destructive and special testing, rectification and correction of defective welding works, production test plate, inspection and testing, erection scheme, protection against damage in transit, stability of structures, installation of temporary structures, setting column bases, dismantling and removal of all temporary structures (weight of temporary structures not payable), return of surplus / waste steel materials to store etc all complete. Including appointment of a searate agency, approved by BHEL, for review and approval of fabrication drgs, in consultation with BHEL. (Structure steel shall be issued by BHEL free of cost) Payment Terms: 1. On completion of fabrication - 50% 2. On completion of erection - 30% 3. On completion of alignment, welding, etc. complete as per description/specification - 20%	MT	5,294	6.2867686145
A2317	Supply, fabrication and erection of minimum 4 mm thick stainless steel liner conforming to ASTM A240 S304 (Type 304) with Mill finish 2B cold rolled, annealed, descaled (pickled) and skin passed on M.S. plate for inside surfaces of hopper & mouth of hopper of bunkers including fixing with stainless steel studs, bolting (including countersunk), welding with electrode classification E308L for welding of stainless steel to stainless steel and E309 for stainless steel to mild steel etc. all complete. Payment Terms: 1. On completion of fabrication - 50% 2. On completion of erection - 30% 3. On completion of alignment, welding, etc. complete as per description/specification - 20%	MT	88	1.1426024348	Supply, fabrication and erection of minimum 4 mm thick stainless steel liner conforming to ASTM A240 S304 (Type 304) with Mill finish 2B cold rolled, annealed, descaled (pickled) and skin passed on M.S. plate for inside surfaces of hopper & mouth of hopper of bunkers including fixing with stainless steel studs, bolting (including countersunk), welding with electrode classification E308L for welding of stainless steel to stainless steel and E309 for stainless steel to mild steel etc. all complete. Payment Terms: 1. On receipt of material at site - 50% 2. On completion of fabrication - 15% 3. On completion of erection - 20% 4. On completion of alignment, welding, etc. complete as per description/specification - 15%	MT	88	1.1426024348

# Revised BOQ Cum Rate Schedule as per Annexure-B

PROJECT: 1X800 MW NTPC SIPAT TPS, CHATTISGARH, INDIA							PART-B
BOQ CUM RATE SCHEDULE (PRICE BID)							
ST NO	ITEM DESCRIPTION	UOM	TOTAL QTY	RATES = TOTAL QUOTED PRICE * WEIGHTAGE / (QUANTITY * 100)	AMOUNT (INR) = RATE * QUANTITY	WEIGHTAGE IN % (UPTO 10 DECIMAL POINT)	
A1	Construction of Worker's Accommodation sheds having adequate no. of rest rooms along with toilets etc. including associated civil and structural works on built, own and operate basis (ownership of sheds lies with the contractor) as per attached drawing, Standard Guidelines for Worker's Accommodation / Establishments at Project Site and Clause 3.9 of TCC for development of labour colony. Payment shall be released on completion of each shed/set as per attached drawing.	Set	8	₹ 5,000,000.00	₹ 40,000,000.00	Fixed Rate	
A2	Deployment of QA/QC Engineer B.E (Civil with min. 3 years of experience) or Diploma holders with min. 5 years of experience in Civil construction quality management either in construction field or any NABL-Laboratories or any research institute like NCCBM/SERC/CGCRI/NTH or equivalent. Preference - Part time experience in QA/QC lab.	Man- Months	96				0.3446794912
A3	Deployment manpower for QA/QC Testing Fresh B.E with min. 70% marks or Diploma holder with 3 years of experience in Civil construction quality management either in construction field or any NABL-Laboratories or any research institute like NCCBM/SERC/CGCRI/NTH or equivalent.	Man- Months	192				0.5013519871
A4	Deployment of Laboratory Technician Previous experience of working as a Lab. Assistant in Civil construction quality management either in construction field or any NABL-Laboratories or any research institute like NCCBM/SERC/CGCRI/NTH or equivalent.	Man- Months	288				0.3760139904
100	EARTH WORK: Earth work in excavation, backfilling and disposal including all labour, equipments etc complete as per specification, drawing and as directed by engineer-in-charge for the following.						
101	Earth work in excavation in all types of soil including ash which can be excavated by any means including setting out, levelling, dewatering (but excluding special type of dewatering viz. well point method), dressing the sides & bottom, all lifts, ramming/compacting the excavated bottom, stacking, disposal of surplus excavated materials within a lead upto 1Km, spreading/levelling of disposed materials etc all complete for following depths below ground level.						
a	Depth from ground level but not exceeding 2 m	CUM	117545				0.4262978829
b	Depth exceeding 2 m but not exceeding 4 m	CUM	95				0.0004315747
103	Earth work in excavation in soft rock including weathered rock which can be excavated by means of crow bar, pick axe, pneumatic rock breaker attachment with excavator machine etc but does not require chiselling or blasting including setting out, levelling, dewatering (but excluding special type of dewatering viz. well point method), dressing the sides & bottom, all lifts, ramming/compacting the excavated bottom, stacking, disposal of surplus excavated materials within a lead upto 1 Km, spreading / levelling of disposed materials etc all complete for following depths below ground level.						
a	Depth from ground level but not exceeding 2 m	CUM	103842				0.6144550989
b	Depth exceeding 2 m but not exceeding 4 m	CUM	45096				0.3202075451
c	Depth exceeding 4 m but not exceeding 6 m	CUM	4618				0.0393489845
d	Depth exceeding 6 m but not exceeding 8 m	CUM	960				0.0098108317
e	Depth exceeding 8 m but not exceeding 10 m	CUM	770				0.0090483067
105	Earth work in excavation in hard rock requiring controlled blasting including wedging, line drilling, pre shearing etc as required, setting out, levelling, dewatering (but excluding special type of dewatering viz. well point method), dressing the sides & bottom, all lifts, necessary licenses/statutory clearances for blasting, supply, storage & handling of blasting materials, stacking/disposal of surplus excavated material within a lead upto 1Km, spreading / levelling of disposed materials etc all complete for following depths below ground level.						
a	Depth from ground level but not exceeding 2 m	CUM	48				0.0007797358
b	Depth exceeding 2 m but not exceeding 4 m	CUM	43571				0.8582872072
c	Depth exceeding 4 m but not exceeding 6 m	CUM	4618				0.1091264401
d	Depth exceeding 6 m but not exceeding 8 m	CUM	100				0.0028364441
e	Depth exceeding 8 m but not exceeding 10 m	CUM	50				0.0016300964
106	Earth work in excavation in hard rock requiring chiselling including setting out, levelling, deawtering (but excluding special type of dewatering viz. well point method), dressing the sides & bottom, all lifts, stacking/disposal of surplus excavated material within a lead upto 1Km, spreading / levelling of disposed materials etc all complete for following depths below ground level.						
b	Depth exceeding 2 m but not exceeding 4 m	CUM	9478				0.2348987067
c	Depth exceeding 4 m but not exceeding 6 m	CUM	323				0.0096061130
d	Depth exceeding 6 m but not exceeding 8 m	CUM	89				0.0031762627
107	Earthwork in Back filling upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 250 mm thickness using/with selected materials from compulsorily excavated earth available within a lead upto 1 Km and compacted as specified including re-excavation of stacked earth, watering, ramming/compaction by manual/mechanical means, dressing etc all complete for the following.						
a	at least 90% maximum dry density as per IS-2720 (Part-VII)	CUM	8000				0.0302350431
A107	Earthwork in Back filling upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 300 mm compacted thickness using/with selected materials from compulsorily excavated earth available within a lead upto 1 Km and compacted as specified including re-excavation of stacked earth, watering, ramming/compaction by manual/mechanical means, dressing etc all complete for the following.						
a	at least 90% maximum dry density as per IS-2720 (Part-VII)	CUM	92557				0.3264875696
b	at least 95% maximum dry density as per IS-2720 (Part-VII)	CUM	618				0.0024202032
B108	Earthwork in Back filling upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 300 mm compacted thickness using/with selected earth directly from excavation within a lead upto 1Km and compacted as specified including watering, ramming/compaction by manual/mechanical means, dressing etc all complete for the following:						
b	at least 95% maximum dry density as per IS-2720 (Part-VII)	CUM	62				0.0001178670
109	Extra over ST No. 101 and 103 to 108 for carriage of material/earth for every 500m or part thereof beyond an initial lead of 1km.						
a	Carriage for stacking/ backfilling of serviceable material/ earth	CUM	51734				0.0276496415
b	Carriage for disposal of serviceable/unserviceable material/ earth	CUM	168321				0.0899604768
110	Earth work in backfilling upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 250 mm thickness so as to achieve required compaction with approved borrowed soil (borrowed soil to be arranged by the bidder) and compacted as specified including supplying borrowed soil, royalty/seignorage fee (if any), sorting, spreading, breaking clods, watering, ramming/compaction by manual/mechanical means, dressing, finishing to required lines, grades and slopes, testing, all lead and lifts etc all complete as per specification, drawing and as directed by the engineer for the following:	CUM	2000				0.0304640964
A110	Earth work in backfilling upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 300 mm compacted thickness so as to achieve required compaction with approved borrowed soil (borrowed soil to be arranged by the bidder) and compacted as specified including supplying borrowed soil, royalty/seignorage fee (if any), sorting, spreading, breaking clods, watering, ramming/compaction by manual/mechanical means, dressing, finishing to required lines, grades and slopes, testing, all lead and lifts etc all complete as per specification, drawing and as directed by the engineer for the following:						
a	at least 90% maximum dry density as per IS-2720 (Part-VII)	CUM	7983				0.1322638831



PART-B						
PROJECT: 1X800 MW NTPC SIPAT TPS, CHATTISGARH, INDIA						
BOQ CUM RATE SCHEDULE (PRICE BID)						
ST NO	ITEM DESCRIPTION	UOM	TOTAL QTY	RATES = TOTAL QUOTED PRICE * WEIGHTAGE / (QUANTITY * 100)	AMOUNT (INR) = RATE * QUANTITY	WEIGHTAGE IN % (UPTO 10 DECIMAL POINT)
A111	Supplying and filling sand upto any depth under floors, around foundations, plinths etc. in layers not exceeding 300 mm compacted thickness and compacted so as to achieve at least 80% relative density as per IS-2720 (Part-XIV) including spreading, watering, ramming/compaction by manual / mechanical means, dressing, royalty (if any) etc. all complete.	CUM	74821			3.6363030104
B111	Supplying and filling clean and well graded sand conforming to IS 383 with grading Zone I to III upto any depth under floors, around foundations, plinths, tank foudnation etc. in layers not exceeding 300mm compacted thickness and compacted so as to achieve at least 80% relative density as per IS-2720 (Part-XIV) including spreading, watering, ramming/compaction by mechanical means, dressing, royalty (if any) etc. all complete.	CUM	2160			0.1049760696
D111	Supplying and filling with approved material (M- sand) upto any depth under floors, around foundations, plinths, paving, tank foundations, etc. in layers not exceeding 300mm compacted thickness and compacted so as to achieve at least 80% relative density as per IS-2720 (Part-XIV) including spreading, watering, ramming/compaction by manual / mechanical means, dressing, royalty (if any) etc. all complete.	CUM	8313			0.4040120678
200	CONCRETE WORK: Providing and placing concrete work including cost of labour, materials (unless otherwise specified in BOQ/contract specification) and equipment for handling, transportation, batching, mixing, placing, vibrating and curing (excluding cost of centering, shuttering and reinforcement) with mechanised equipments like batching plant, transit mixer, concrete pump etc. complete as per drawing, specifications and as per direction of engineer in charge for the following.					
201	Concrete of grade M7.5 (1 part cement, 4 part sand, 8 parts of 40 mm graded aggregate by volume) as mass filling course, lean concrete, levelling course, mud mat under and around foundations/floors below finished floor level upto depth of 10m from FFL (For depth greater than 10m from FFL, extra over for additional depth to be paid in Item No 224)	CUM	12231			1.7014756752
202	Concrete of grade M10 (1 part cement, 3 part sand, 6 parts of 40 mm graded aggregate by volume) as lean concrete, levelling course, mud mat under and around foundations/floors below finished floor level upto depth of 10m from FFL (For depth greater than 10m from FFL, extra over for additional depth to be paid in Item No 224)	CUM	366			0.0509148963
203	Concrete of grade M15 (1 part cement, 2 part sand, 4 parts of 40 mm graded aggregate by volume) as lean concrete, levelling course, mud mat under and around foundations/floors below finished floor level upto depth of 10m from FFL (For depth greater than 10m from FFL, extra over for additional depth to be paid in Item No 224)	CUM	73			0.0100856011
204	Concrete of grade M20 (1 part cement, 1.5 part sand, 3 parts of 10-20 mm graded aggregate by volume) under floors, paving, plinth protection, pipe encasing etc complete below finished floor level upto depth of 10m from FFL (For depth greater than 10m from FFL, extra over for additional depth to be paid in Item No 224).	CUM	510			0.0687858683
205	Providing and laying Design Mix cement concrete conforming to IS:456 & IS 10262-2009 for reinforced concrete works with sand and graded hard stone aggregate of 20mm nominal size in foundations/substructure, grade slab, paving, drains, under floors etc for any shape, position or thickness etc complete including use of plasticizer / superplasticizer conforming to IS:9103 (latest) to achieve required slump in concrete all complete as per specification & drawing below finished floor level upto a depth of 10m from FFL(For depths greater than 10m from FFL, extra over for additional depth to be paid in Item No 224), for the following.					
b	M 25 Grade	CUM	71684			10.9928290199
c	M30 Grade	CUM	2435			0.3763848659
206	Providing and laying Design Mix cement concrete of grade conforming to IS:456 & IS 10262-2009 for reinforced concrete works with sand and graded hard stone aggregate of 20mm nominal size in superstructure for any shape, position or thickness etc complete including use of plasticizer / superplasticizer conforming to IS:9103 (latest) to achieve required slump in concrete all complete as per specification & drawing upto 10m level above finished floor level (For height greater than 10m from FFL, extra over for additional height to be paid in Item No 225), for the following.					
b	M 25 Grade	CUM	14255			2.2556783268
207	Providing and laying Design Mix cement concrete confirming to IS:456 & IS 10262-2009 for reinforced concrete works of grade mentioned below in machine foundations for TG, Gas Turbine, ID/FD/PA fans, BFP, Mills, Crusher House, CHP-AHP civil works, FGD,etc at all elevations below/above finished floor level (except top decks supported over vibration isolation system and TG deck) but including TG foundation Columns with addition of suitable plasticizer conforming to IS 9103 (latest) to achieve a slump more than 125mm in concrete as per manufacturer's recommendation with 20 mm nominal size graded aggregate in concrete all complete as per specification & drawing all complete.					
a	M 30 Grade	CUM	8018			1.3893499343
b	M 35 Grade	CUM	3260			0.5688715721
A208	Providing and laying of M50 grade of concrete as per IS:456 & Design Mix of concrete as per IS 10262-2009 by using suitable % of supplementary cementitious materials like Micro-silica conforming to IS:15388 / Micro fine-GGBFS conforming to IS:16714 along with OPC-43 grade cement as per IS-269-2015 [The OPC-43 cement content shall not be more than 450 kg/cum of concrete as per IS:456] for reinforced concrete works by using graded aggregate in top deck of all machine foundations supported / not supported on vibration isolation system (excluding supply and installation of vibration isolation system) and top deck of TG foundation at all levels including addition of suitable superplasticiser conforming to IS-9103 & ASTM C-494, Type-G category to achieve medium to high flow concrete as per EFNARC-specifications (Slump flow by Abrams cone shall be 650 -800 mm & T50 cm slump flow should be 2-5 sec) as per manufacturer's recommendation, preparation of scheme for concreting, getting it approved by engineer in charge, labour, materials, equipment, handling, batching, transporting, mixing, pumping, placing, levelling, vibrating, compacting, curing, testing, cleaning and rendering the exposed surface with cement sand mortar to give a smooth and even surface, maintaining and submitting records of concreting, petrographic examination and potential reactivity of aggregate as per IS-2386, Part-VII & Part-VIII etc. all complete as per specification, drawing and instructions of engineer in charge, including ultra-sonic pulse velocity (UPV) testing as directed by engineer in charge, rectification of the defects in concreting observed by UPV testing by cement/epoxy grout etc., but excluding formwork, staging, reinforcement, embedments and temperature control of concrete. Payment terms - a) After casting 75% ; b) After receipt of ultrasonic pulse velocity (UPV) test report - 25%.	CUM	2230			0.5954948255
209	Extra over St. No. 205 to 208 for controlling of temperature of fresh concrete to less than 23 degree centigrade using ice, including all related arrangements for providing, storing and mixing of ice with water, cooling of aggregates etc. All complete as per specification, drawing and instruction of engineer in charge.	CUM	14369			0.3016995375
210	Extra over ST Nos. 205 to 207 for conducting UPV test for concrete at all levels including all equipments, making necessary arrangements, staging, submission of report etc. all complete as directed by engineer in charge and as per specification.	CUM	976			0.0227806536
211	Providing and encasing of structural steel member with concrete using nominal aggregate size of 12.5mm down. Encased member shall be wrapped with welded wire mesh/chicken wire mesh with proper lap etc. complete as per specification for the following grades					
b	M 25	CUM	983			0.1367468391
212	Screed concrete conforming to IS 456 with sand and graded hard stone aggregate 12.5mm/6 mm nominal size on the roof upto 10m level above finished floor level (For height greater than 10m from FFL, extra over for additional height to be paid in Item No 225) or thickness, drains etc complete as per following.					
a	01:02:04	CUM	193			0.0268485656
213	Providing and laying Design Mix cement concrete as per IS:456 & IS 10262-2009 for reinforced concrete works using graded aggregate for Concrete in precast works like roof slabs/trench covers, fins, lintels, chajas, beams, columns, wall panels, facias etc.at all levels in all kinds of work including formwork/moulds, curing, rendering the top exposed surface with cement sand mortar (1:3), handling, storing, transpoting, all leads, erection without damage, setting in position with cement sand mortar (1:3), filling the gaps between adjacent precast units with M30 grade concrete or cement sand mortar (1:3) and including making of holes for bolts for fixing, welding etc.complete with graded aggregate (20/12.5/10 mm) and as per specification and drawing for following grades.					
b	M25	CUM	363			0.0990273249

PART-B						
PROJECT: 1X800 MW NTPC SIPAT TPS, CHATTISGARH, INDIA						
BOQ CUM RATE SCHEDULE (PRICE BID)						
ST NO	ITEM DESCRIPTION	UOM	TOTAL QTY	RATES = TOTAL QUOTED PRICE * WEIGHTAGE / (QUANTITY * 100)	AMOUNT (INR) = RATE * QUANTITY	WEIGHTAGE IN % (UPTO 10 DECIMAL POINT)
214	Providing and laying Design Mix cement concrete as per IS:456, IS 3370 & IS 10262-2009 for reinforced concrete works using graded aggregate for Concrete in water retaining/conveying structures including addition of suitable plastisizer cum waterproofing cement additives conforming to IS 9103 latest to achieve a slump more than 125 mm in concrete as per manufacturers recommendation and conforming to limits of permeability as per IS 2545 and specification with 20 mm nominal size graded aggregate upto depth of 10m from FFL, (For depth greater than 10m from FFL, extra over for additional depth to be paid in Item No 224). for following grades. Watertightness is to be ensured including structural grouting if required.					
b	M 30	CUM	2210			0.3810901945
215	Dismantling concrete work for all types of structures at all levels including stacking of servicable material to a lead of 500 m and disposal of unservicable material upto a lead of 2 km, cutting of reinforcement, labour, equipment, safety precautions etc all complete as per drawings, specification and instructions of engineer in charge.					
a	Plain cement concrete of all grades	CUM	107			0.0037784260
b	Reinforced cement concrete of all grades	CUM	60			0.0032892062
216	Chipping of concrete in reinforced concrete work, cutting pockets, making openings at all levels and according to shapes, disposal of waste materials upto a lead of 2 km as directed by engineer including equipment, safety precautions, making good the broken surface etc all complete as per specification, drawing, instructions of engineer in charge but excluding cutting of reinforcement.	CUDM	1254			0.0036382835
217	Extra over and above St No 216 for cutting of reinforcement, all sizes and types including labour, equipment, return of cut reinforcement to store etc all complete as per specification, drawings and instructions of engineer in charge. Measurement shall be on the cross sectional area of reinforcement cut.	SQCM	144			0.0000329837
218	Cutting Reinforced concrete with mechanised tools like Core drilling machine etc. for cutting pockets, holes, cores in slab, beam, column or foundation as per direction of engineer in charge.	CUDM	126			0.0013997451
219	Providing and applying curing compound (water based) of approved make where ever required as per manufacturer's specification.	SQM	100			0.0005344578
222	Cutting of groove of 10mm X 40mm size with groove cutting machine in concrete paving all complete.	RM	475			0.0011786704
223	Cutting of existing concrete/ RCC work inside control room/ pump house or anywhere inside boundary using power tools of (DD2E of HILTI/ BOSCH make) with low noise and dust including cutting reinforcements, removing the rubbish within a lead of 1 km, including making good the broken edges/ surface with cement mortar, painting, finishing to match with existing finishing, scaffolding/ supporting at any level, all complete and as directed by Engineer (measurements shall be taken as per cutting surface area).	SQM	238			0.0257403482
225	Extra over item no. 206 and 212 for height above FFL (Finished Floor Level) as per following:					
a	Height exceeding 10m from FFL but not exceeding 20m	CUM	14848			0.2392025582
b	Height exceeding 20m from FFL but not exceeding 30m	CUM	2960			0.0858797385
c	Height exceeding 30m from FFL but not exceeding 40m	CUM	2110			0.0815975860
300	FORMWORK: Providing, fixing and removing formwork at all elevations for all structures, as per specifications and including all labour, material, scaffoldings and centering etc. complete as per drawing, specifications and as per direction of engineer in charge for the following.					
301	Fairface form work with good quality water proof ply wood of minimum 12mm thickness and smooth surface below finished ground floor level for foundations, footings, base of columns, walls, columns, pilasters, beams & slabs (for which scaffolding work not required for vertical support of bottom face of formwork), mass concrete, trenches, grade slab, paving etc.including chamfering of edges as per drawing, specification and instruction of engineer in charge.					
a	Upto Depth 10m From FGL	SQM	109305			2.9292912270
302	Fairface form work with good quality water proof ply wood of minimum 12mm thickness and smooth surface above finished ground floor level for columns, beams, suspended/intermediate floors, roofs, lintels, cantilevers, staircases, landings, balconies, etc. including chamfering of edges as per drawing for all heights as per specification, drawing and instruction of engineer in charge.					
a	For Height Upto 20m from FGL	SQM	5800			0.1864341621
A302	Fairface form work with good quality water proof Plywood with film face of minimum 12mm thickness and smooth surface above finished ground floor level for columns, beams, suspended/intermediate floors, roofs, lintels, cantilevers, staircases, landings, balconies, etc. including chamfering of edges as per drawing for all heights as per specification, drawing and instruction of engineer in charge.					
a	For Height Upto 20m from FGL	SQM	23345			0.7503975026
b	For Height More Than 20m from FGL	SQM	1188			0.0427494687
A303	Fairface Formwork with good quality water proof Plywood with film face of minimum 18mm thickness and smooth surface for TG superstructure (above base raft level for columns, connected beams & TG Deck only) including preparation of scheme, designing, submission and approval of staging drawing with sufficient props, braces and ties at every tier of height of approx. 4m for all heights complete including chamfering of edges, deshuttering as per drawing, specification, and instruction of engineer in charge. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	SQM	4890			0.9735283030
304	Providing, fixing and removing formwork in block-outs/pockets and openings (below 0.1 sqm plan area) at all elevations including cutting, formation of all shapes and all other operations required for making the required shape and size all complete as per specification, drawing and instruction of engineer in charge.					
a	Upto 150 mm depth	Each	190			0.0016682719
b	Pockets of depths more than 150mm and upto 300 mm depth	Each	210			0.0029662410
c	Pockets of depths more than 300mm and upto 600 mm depth	Each	400			0.0098034837
d	Pockets of depths more than 600mm and upto 1000 mm depth	Each	380			0.0143326320
e	Pockets of depths more than 1000mm and upto 1500 mm depth	Each	285			0.0153299685
305	Extra over item no.301 and 302 for curved form work for foundations, footings, beams, walls, trenches, domes, arches etc as per specification.					
a	Extra for Curve Shuttering for Item No. 301	SQM	475			0.0025386747
400	REINFORCEMENT WORK : Reinforcement work including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling etc at all level as per specification, drawings and as directed by engineer - in - charge.					
401	Providing, straightening, cutting, bending, placing in position at any level, binding of mild steel reinforcements conforming to grade 1 of IS:432 part 1 in concrete including cost of reinforcement and binding wire, labour, scaffolding, transportation to & from stores etc. all complete as per specifications & drawings. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	MT	5			0.0151717308
403	Transportation, straightening, cutting, bending, placing in position at any level, binding in position of steel reinforcements of TMT steel of grade Fe-500D/550D or 500EQ or HCRM or any other Grade conforming to IS:1786 including cost of binding wire, labour, scaffolding, transportation to & from stores etc complete all as per specifications, drawings and as directed by Engineer. (BHEL to supply steel free of cost)	MT	10555			4.6338448448

PART-B						
PROJECT: 1X800 MW NTPC SIPAT TPS, CHATTISGARH, INDIA						
BOQ CUM RATE SCHEDULE (PRICE BID)						
ST NO	ITEM DESCRIPTION	UOM	TOTAL QTY	RATES = TOTAL QUOTED PRICE * WEIGHTAGE / (QUANTITY * 100)	AMOUNT (INR) = RATE * QUANTITY	WEIGHTAGE IN % (UPTO 10 DECIMAL POINT)
405	Providing & fixing of Rebar in existing concrete surface by inserting reinforcement bar with Epoxy based suitable bonding compound of Hilti or equivalent make (HIT-RE-500 of Hilti or equivalent make) for interconnection of new R.C. structure with existing R.C. structure. Depth of drilled hole should be suitable to develop maximum recommended strength as per approved manufacturer's recommendation. This item includes supply of all materials including bonding chemicals, T&P required to execute the work, cost of all labour, transportation of chemical, staging to reach work place etc. all complete as directed by Engineer - in-charge. Random Pull out non destructive test as directed by engineer shall be conducted to ensure strength of bond and same is included in this item. Reinforcement bar shall be paid separately under item no. 402, 403, 405 as applicable.					
a	12mm Reinforcement bar	Nos.	35			0.0005785506
b	16mm Reinforcement bar	Nos.	48			0.0012312572
c	20mm Reinforcement bar	Nos.	60			0.0021714258
406	Supply and fixing reinforcement bar couplers (of approved manufacturer's as per the relevant IS code) in position for steel reinforcements of TMT steel of grade Fe-500D or 500EQR or any other Grade conforming to IS:1786 including , labour, scaffolding, transportation to & from stores etc complete all as per specifications, drawings and as directed by Engineer. (Agency has to supply reinforcement bar couplers).					
b	16mm dia	Nos.	100			0.0003473976
c	20mm dia	Nos.	72			0.0003105964
d	25mm dia	Nos.	60			0.0003573232
e	28mm dia	Nos.	44			0.0004048136
f	32mm dia	Nos.	30			0.0003183842
g	36mm dia	Nos.	24			0.0003261720
500	Roof Treatment works: Roof treatment works including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, curing, sampling, testing etc at all level as per specification, drawings and as directed by engineer - in - charge.					
501	Providing and laying underbed/topping grading plaster with cement mortar 1:4 (1 cement : 4 sand) and average thickness of 25 mm including preparation of surface, batching, mixing, leveling etc. all complete.	SQM	65			0.0006426855
502	Providing and laying underbed/topping grading plaster with cement mortar 1:4 (1 cement : 4 sand) and average thickness of 15 mm including preparation of surface, batching, mixing, leveling etc all complete.	SQM	15371			0.0909534613
A502	Providing and laying Screed concrete of grade M15 (1:2:4) with sand and graded hard stone aggregate 12.5mm/6 mm nominal size having minimum 25 mm thickness at the lowest point of the slope to maintain roof slope including preparation of surface, batching, mixing, leveling etc. all complete as per specification and as per direction of Engineer-in-charge.	SQM	7653			0.0698658277
506	Providing and applying PU based water proofing treatment with one coat of polyurethane or any other equivalent material based primer with an application rate of minimum 6 sq.m per litre and two successive liquid coatings of high solids content urethane pre-polymers or equivalent material based finish coats as per relevant IS/ASTM standards to form an elastomeric membrane with overall dry film thickness 1.5 mm subject to minimum 500 gm/sqm/coat application rate. Item includes surface preparation, polyscric cloth /fabric, polymerised mortar base preparation, etc all complete as per specifications and directions of engineer in charge.	SQM	65			0.0027221083
B506	Providing and applying WATER PROOFING ON ROOF HAVING NO STRUCTURAL SLOPE: Screed concrete mix (1:2:4) grading having minimum 25mm thickness at the lowest point of the slope shall be laid over R.C.C. slab and shall be laid as per the slope specified else- where in the specification. Top surface of grading underbed shall be finished with 15mm thick cement plaster (1:4). Over the finished surface elastomeric membrane shall be laid and top of the elastomeric membrane shall be finished with 20 mm thick cement: sand (1:4) mortar with chicken wire mesh and pressed precast concrete tiles of 20 mm thickness where applicable shall be laid over mortar at green stage. Provision for thermal expansion of roofing tiles shall be kept by providing an expansion gap in both directions filled up with polysulphide joint sealant. The expansion gap shall be provided in the cement sand mortar underbed layer also. The elastomeric membrane above mentioned for water- proofing shall be of two component, instant setting, 100% solids spray applied hybrid polyurea polyurethane liquid applied elastomeric seamless waterproofing membrane meeting the requirements of LAM as per ASTM C836 and having excellent tensile strength of 15MPa (As per ASTM 0412), elongation more than 450% (as per ASTM 0 412), tear strength of 60 Kn/m (As per ASTM 01004/ASTM 0624), adhesion to concrete of 2MPa (as per ASTM 0 4541), abrasion resistance of 60mg loss (1 Kg.CS 10 Wheels,1000 cycles - As per ASTM 04060), Shore A Hardness of 85 (As per ASTM 02240), resistance to hydrostatic pressure head of 7 Bar (As per ASTM 0 5385/ 01N 16726), puncture resistance of 1000N (As per ASTM E154), water vapour permeability of 25 mg/m2/day (As per ASTM E96), Impact re-sistance of 17 N.m (As per ASTM 02794), Low temperature crack bridging ability up to 3.2mm (As per ASTM C 1305), dynamic crack bridging ability class B 3.2 (as per EN 1062-7 Method B- B3.2) with no crack observed in the coating after 20000 sinusoidal cycles, resistance to root (As per CEN TS/14416) and fire resistance of class B (As per EN 13501-1).The coating shall be applied with a total consumption of 1.6 Kg/Sqm to achieve a total system DFT of 1.5mm, thereby satisfy the requirements of LAM as per ASTM C898 and shall be applied on the entire horizontal surface extending upto 300mm above the FFL on the vertical surface as per the methodology. The application system includes base preparation of cleaning, brushing and removal of flacky materials, grouting the porous area with cementitious grout, proper coving between slab and wall junctions and priming the surface with two component solvent free epoxy primer which is applied with a consumption of 200 grams per Sqm, followed by spray application of hybrid polyurea waterproofing coating. Protective geo textile fabric of minimum 150GSM over the entire membrane with proper overlaps shall be applied. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	SQM	15306			1.4085266386
507	Providing and laying wearing course consisting of 25mm thick plain cement concrete of grade M15 (1:2:4) with graded aggregate of 12.5mm size cast in panels of maximum size 1.2mx1.2m and reinforced with 0.56 mm dia. galvanised chicken wire mesh and sealing of joints (in grooves of 6mm X 6mm) using silicon /elastomeric compound etc all complete.	SQM	15306			0.4785540775
A510	Providing and laying cement concrete chequered flooring tiles of 22 mm thickness conforming to IS 13801 including 20 mm thick 1:4 cement sand mortar with chicken wire mesh over the top most layer of roofing treatment with fine joints including sealing of joints (silicon/elastomeric sealant) and providing expansion gap in both directions including underbed(as per drawings) filled up with (silicon/elastomeric) joint sealant etc all complete. (Water proofing paid elsewhere)(including cost of cement for tiles making) Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	SQM	1530			0.0341106259
B510	Providing and laying pressed precast concrete tiles of 20 mm thickness including 20 mm thick 1:4 cement sand mortar with chicken wire mesh over the top most layer of roofing treatment with fine joints including sealing of joints (silicon/elastomeric sealant) and providing expansion gap in both directions including underbed(as per drawings) filled up with (silicon/elastomeric) joint sealant etc all complete. (Water proofing paid elsewhere)(including cost of cement for tiles making)	SQM	13775			0.3071071055
A514	Providing and applying epoxy phenolic coating with two component transparent polyamide cured epoxy sealer coating (having solid by volume minimum 40% ±2%) of minimum 50 micron DFT all complete of approved make and as per manufacturer's recommendation. Surface to be coated shall be absolutely dry, clean and dust free. Sealer coat shall be followed with the application of epoxy phenolic coating (solid by volume minimum 63%) of minimum 400 micron DFT. This coat shall be applied after an interval of minimum 24 hours (from the application of primer coat) by airless spray technique.	SQM	100			0.0023380862



PART-B						
PROJECT: 1X800 MW NTPC SIPAT TPS, CHATTISGARH, INDIA						
BOQ CUM RATE SCHEDULE (PRICE BID)						
ST NO	ITEM DESCRIPTION	UOM	TOTAL QTY	RATES = TOTAL QUOTED PRICE * WEIGHTAGE / (QUANTITY * 100)	AMOUNT (INR) = RATE * QUANTITY	WEIGHTAGE IN % (UPTO 10 DECIMAL POINT)
B514	Providing and applying with minimum 400 micron Food grade epoxy coating complying to FDA Title 21, Part 175.300 all complete as per manufacturer's recommendation and as per specification. Surface to be coated shall be absolutely dry, clean and dust free	SQM	100			0.0025197722
517	Providing and laying foam concrete blocks in the toilets/sunken slab etc. complete as directed by engineer in charge.	cum	145			0.0133349138
A518	Providing and laying water proofing treatment in sunken portion of WCs, bathroom, kitchen, pantry etc., in two (2) coats by applying cement slurry mixed with water proofing cement compound (Danocrete I-protect flex or equivalent make(confirming to IS 2645). The First layer is of slurry of cement @ 0.488 kg/sqm mixed with water proofing cement compound @ 0.253 kg/ sqm and cured for 4 hours. The Second layer is of slurry of cement @ 0.242 kg/sqm mixed with water proofing cement compound @ 0.126 kg/sqm with air cured for 4 hours followed with water curing all complete with water ponding test as per IS Code and as directed by engineer in charge	SQM	475			0.0105085640
A519	Providing Fillets at junction of roof and vertical walls with cast-in-situ cement concrete (1:1.5:3) nominal mix followed by 12mm thick 1:4 cement sand plaster complete as directed by engineer in charge	RM	1188			0.0049411223
600	JOINTS AND FILLERS: joints & fillers including all labour, material, equipment, transportation, handling etc at all level as per specification, drawings and as directed by engineer - in - charge.					
601	Supplying & installation of bitumen impregnated fibre board confirming to IS 1838 as joint filler at joints in concrete including nailing, coating of both faces with coal tar pitch/bitumin etc. all complete.					
c	25 mm wide joints	SQM	1			0.0000401989
d	50 mm wide joints	SQM	950			0.0728962308
603	Providing and applying polysulphide based sealant conforming to IS:12118 in expansion joints in concrete including cleaning of joints, raking out groove, application of primer, scaffolding etc. all complete for following size grooves (10 mm thick baker rod to be paid separately):					
b	50mmX25mm groove size	RM	6335			0.1867021546
604	Supplying and filling in position hot applied bitumin sealing compund (Grade A) confirming to IS 1834 including cleaning, mixing, heating, pouring/injecting sealing compound in gaps in joints including application of primer etc. all complete.					
a	10mm X 40mm	RM	100			0.0001908778
b	12mm X 25mm	RM	100			0.0001756076
c	20mmX25mm	RM	100			0.0002061480
605	Supplying and installation of commercial quality of expanded polystyrene products from reliable manufacturers as approved by the Engineer, as filler material in joints including nailing, installation as per manufacturer's recommendation etc. all complete.					
a	12 mm wide joints.	SQM	100			0.0001565198
b	20 mm wide joints.	SQM	100			0.0002443236
c	25 mm wide joints	SQM	100			0.0003054045
610	Providing and fixing PVC water stops in joints conforming to IS 12200 & IS 15058 all complete for the following: (Bulb or Kicker type)					
b	230 mm wide and 8 mm thick	RM	100			0.0010498279
d	230 mm wide and 6 mm thick	RM	785			0.00061434019
613	Providing and fixing G.I strips minimum 1.5mm thk and 150mm wide including fixing accessories etc. all complete.	Kg	250			0.0020805680
614	Providing and fixing aluminium strips minimum 18 SWG thk and 300mm wide over expansion joints with minimum lap of 50mm length including brass / aluminium screws, rawl plugs etc. all complete.	Kg	250			0.0043520138
615	Providing and fixing 300 mm wide Stainless steel strips over expansion joints with minimum lap of 50mm length including stainless steel screws, rawl plugs etc. all complete.	Kg	150			0.0034415267
A615	Providing and fixing 300 mm wide Stainless steel strip having minimum thickness 3mm over expansion joints with minimum lap of 50mm length including stainless steel screws, rawl plugs etc. all complete.	Kg	150			0.0034415267
700	MS EMBEDMENTS: Embedments including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling etc. at all level as per specification, drawings and as directed by engineer - in - charge.					
701	Supply, fabricating and fixing of mild steel embedments, inserts, pipe sleeves, angle pieces, rungs of various diameters, plates of dimensions as required etc. including welding, bolting, cutting, drilling, scaffolding, setting etc. all complete.	MT	57			0.2178335216
A701	Supply, fabricating and fixing of mild steel embedments, inserts, pipe sleeves, angle pieces, rungs of various diameters, plates of dimensions as required etc. including manual cleaning with primer coat of chlorinated rubber based zinc phosphate primer of Minimum 50 Micron Dry Film Thickness (DFT) welding, bolting, cutting, drilling, scaffolding, setting etc. all complete. Payment Terms: 1. On completion of fabrication - 50% 2. On completion of erection - 30% 3. On completion of fixing, welding, etc. complete as per description/specification - 20%	MT	361			1.4006334971
702	Supply, Fabrication, transportation, delivery at site and erection, installation and alignment of mild steel foundation bolt assembly conforming to IS:2062 and grade 1 of IS:432 in concrete along with nuts, lock nuts (as per IS:1363, 1364 and IS:3138), washers, anchor plates, stiffner plates, protective tape, pipe sleeves, templates etc. including welding, cutting, grinding, threading, drilling etc. all complete. Payment Terms: 1. On completion of fabrication - 50% 2. On completion of erection - 30% 3. On completion of fixing, welding, etc. complete as per description/specification - 20%	MT	135			0.6389970208
703	Same as above items 701 & 702 with BHEL supplied material free of cost including loading, transportation, unloading etc. all complete from BHEL store to plant site.					
A	Mild steel embedments, inserts, pipe sleeves, angle pieces, rungs of various diameters, plates of dimensions as required etc.	MT	50			0.0546005939
B	Mild steel foundation bolt assembly conforming to IS:2062 and grade 1 of IS:432 in concrete along with nuts, lock nuts (as per IS:1363, 1364 and IS:3138), washers, anchor plates, stiffner plates, protective tape, pipe sleeves, templates etc.	MT	35			0.0376872940
704	Supplying, fabricating, erecting and installing following items in concrete/brickwall for all kind of works, including setting material in concrete, layout, scaffolding, cutting, forming, grinding, drilling, bolting, welding, jointing, testing etc. all complete.					
a	MS pipes of all diameters	kg	4376			0.0138656686
b	PVC pipes / conduits of all diameters	kg	845			0.0122259138
c	UPVC pipes / conduits of all diameters	kg	250			0.0041038726
d	Expansion anchor fasteners (galvanised) of HILTI make(HUD-1 Universal Fastners) or equivalent of safe tensile capacity as specified below for brick work with expansion sleeve of A6 polyamide:					
i	8mm Dia	Nos	100			0.0002137831
ii	10mm Dia	Nos	100			0.0002366885
iii	12mm Dia	Nos	100			0.0002672289
e	Expansion fasteners (mechanical galvanised) of HILTI make or equivalent of safe tensile capacity as specified below for concrete work with expansion sleeve of stainless steel:					

PART-B						
PROJECT: 1X800 MW NTPC SIPAT TPS, CHATTISGARH, INDIA						
BOQ CUM RATE SCHEDULE (PRICE BID)						
ST NO	ITEM DESCRIPTION	UOM	TOTAL QTY	RATES = TOTAL QUOTED PRICE * WEIGHTAGE / (QUANTITY * 100)	AMOUNT (INR) = RATE * QUANTITY	WEIGHTAGE IN % (UPTO 10 DECIMAL POINT)
i	HST M8	Nos	100			0.0007864165
ii	HST M10	Nos	100			0.0010421928
iii	HST M12	Nos	124			0.0020213195
iv	HST M16	Nos	24			0.0007064006
f	Chemical Expansion fasteners (galvanised) of HILTI make or equivalent of safe tensile capacity as specified below for concrete work with anchoring rod,nuts,washers,chemicals all complete,etc:					
i	HAS-E5.8 M8	Nos	50			0.0006585284
ii	HAS-E5.8 M10	Nos	50			0.0007635112
iii	HAS-E5.8 M12	Nos	50			0.0009543890
iv	HAS-E5.8 M16	Nos	50			0.0017847074
v	HAS-E5.8 M20	Nos	50			0.0027620017
vi	HAS-E5.8 M24	Nos	50			0.0043901893
705	Placing, locking and releasing of Vibration Isolation spring modules over the foundation at all elevations including providing all assistance under the supervision of the supplier, transportation from BHEL store, necessary staging, platforms, leveling, alignment etc. all complete.	Nos	25			0.0017350792
706	Supply and installation of approved 25mm thick vibration damping resilient pads on/around foundation of vibrating equipment and at other locations all complete.	SQM	40			0.0027715456
800	GROUTING: Grouting including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, roughening surface, cleaning, ramming, curing etc. at all level , drawings and as directed by engineer - in - charge.					
801	Providing & grouting with cement slurry mix of approved ratio using pressure pump for water retaining concrete structures as per approved procedure including cost of nipples/ nozzles, cement, admixture, curing, pressure pumps, slurry agitator etc. all complete. Cost shall include fixing of nipples at maximum 500 mm centre to centre spacing, cutting of nipples after completing of grouting, making good of the nipple hole with appropriate non-shrink cement paste, water tightness test etc. all complete wherever specified in the drawing.	SQM	25			0.0006556652
802	Providing & grouting of pocket holes, pipe sleeves under base plates, machinery, pipe supporting structures etc. with mix 1:1 (1 cement :1 sand ) using non shrink admixture etc. all Complete.	CUM	5			0.0045201771
803	Providing & grouting of pocket holes, pipe sleeves and under base plate of structural steel work/ machinery/ pipe supporting structures including roughening of surface, cleaning, ramming, curing etc. all complete with mix 1:1:2 (1 cement : 1 coarse sand : 2 aggregate of 6 mm down graded stonechips ) using non shrink admixture as per specification, drawing and direction of engineer-in-charge. (Cost of all material and cleaning the pocket by compressed air shall be in the scope of the contractor).	CUM	5			0.0043340713
804	Providing & grouting of pocket holes, pipe sleeves and under base plates of structural steel work/ machinery/ pipe supporting structures including roughening of surface, cleaning, ramming, curing etc. all complete with ConbextraGP-1 or equivalent as per specification, drawing and direction of engineer-in-charge. (Cost of all material and cleaning of the pockets by compressed air shall be in the scope of the contractor).	CUM	142			0.2366870943
805	Providing & grouting of pocket holes, pipe sleeves and under base plates of structural steel work/ machinery/ pipe supporting structures including roughening of surface, cleaning, ramming, curing, etc. all complete with Conbextra GP-2 or equivalent as per specification, drawing and direction of engineer-in-charge.(Cost of all material and cleaning of the pockets by compressed air shall be in the scope of the contractor).	CUM	27			0.0493590514
806	Providing Chemical (epoxy) injection grouting with pressure pump for water retaining concrete structures conforming to IS:6494, including fixing nozzles, cost of approved chemical, admixture, curing etc. all complete . Payment shall be made as per the consumption of chemical grout.	Kg	100			0.0067418038
900	DOORS & WINDOWS: Doors, windows, ventilators, louvers, roof ventilators, rolling shutters, partitions including all labour, material (unless otherwise specified in BOQ/contract specification), equipments, transportation, handling, preparation of working drawings etc. at all level as per specification, drawings and as directed by engineer - in - charge.					
902	Providing and fixing teak wood frame panel door shutter as per IS 1003 with 35 mm x 150 mm vertical rail & 35mm x 125 mm horizontal rail and 12 mm thick interlocked panels of teakwood with proper wood joinery including beading, preperation of working drawings,godrej or equivalent make mortice lock with handels on both sides,approved ISI mark anodised fittings like door stopper,300mm long tower bolts,16x300mm long aldrops ,125mm long handles on both sides etc. butt hinges, sliding bolt ,knobs, (all fitting shall be anodised aluminium color dyed), screws, primer and finish painting / polishing etc. all complete. (Finish painting / polishing paid separately) Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	SQM	50			0.0098492943
903	Providing, fitting and fixing solid core flush door shutter as per IS 2202 part II, 35mm thick homogenous particle board bonded with BWP type phenolformaldehyde synthetic resin, partical board core conforming to IS 3087 type I, 35x12 mm thick teakwood beading all around including preparation of working drawings, godrej or equivalent make mortice lock with handels on both sides,approved ISI mark anodised fittings like door stopper,300mm long tower bolts,16x300mm long aldrops ,125mm long handles on both sides etc. butt hinges, sliding bolt, knobs, (all fittings shall be anodised aluminium color dyed), finish synthetic paint over primer, screws etc. all complete as per drawing, specification and instruction of engineer in charge. with commercial faces and teak wood edges. (Finish painting paid separately) Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	SQM	126			0.0204766829
904	Providing and fixing single or double steel door shutters with 45 mm thick flush design shutter comprising of two outer sheets of 18 gauge steel sheets rigidly connected and reinforced inside with continuous vertical 20 gauge stiffeners, spot welded in position at not more than 150mm on centres including void filled with mineral wool (density as per specification), all fittings, air tight, Godrej or equivalent make mortice lock with handle on both sides, shop and final painting etc all complete. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	SQM	30			0.0090705129
A904	Providing and fixing single or double steel door shutters with 35mm (min) thick flush design shutter as per IS 4351 comprising of two outer sheets of 18 gauge(1.2mm min.) steel sheets rigidly connected and reinforced inside with continuous vertical 20 gauge (1.0 mm) stiffeners, spot welded in position at not more than 150mm on centres including void filled with mineral wool (density as per specification), all fittings, Godrej or equivalent make mortice lock with handle on both sides, shop and final painting etc all complete. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	SQM	479			0.2103241559

PART-B						
PROJECT: 1X800 MW NTPC SIPAT TPS, CHATTISGARH, INDIA						
BOQ CUM RATE SCHEDULE (PRICE BID)						
ST NO	ITEM DESCRIPTION	UOM	TOTAL QTY	RATES = TOTAL QUOTED PRICE * WEIGHTAGE / (QUANTITY * 100)	AMOUNT (INR) = RATE * QUANTITY	WEIGHTAGE IN % (UPTO 10 DECIMAL POINT)
905	Providing and fixing single or double steel door shutters of 35mm (min) thickness with 18 gauge M.S. sheets shutter presenting a flush surface on the outside and inside stiffened with semitubular edge and central stiffening rail which shall convey the lock including fixtures, Godrej or equivalent make mortice lock with handle on both sides, shop and final painting etc all complete. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	SQM	13			0.0042377543
906	Providing and fixing anodized extruded aluminium doors (single or double shutter) conforming to IS:1948, IS:1949 fabricated from extruded sections of HINDALCO/JINDAL or equivalent make having minimum 3mm wall thickness as per IS:1285, IS:733 and anodized and electro color coating of required shade as per IS 1868 ( minimum anodized coating of grade AC15 ). fixed with rawl plugs, expansion fasteners,SS screws / fixing clips necessary filling of gaps at junctions, at top, bottom & sides with required PVC / neoprene felt for bi-metallic protection etc. Glazing shall be clear float glass of 6mm thickness including snap fit type beading, concealed screws, fixtures, Godrej or equivalent make Mortice lock with handle on both sides, etc all complete. Aluminium section shall be smooth, free of stains, straight, mitred & jointed mechanically wherever required. (Glazing shall be paid separately) Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	KG	4266			0.1035722683
A906	Providing and fixing electrically operated, self operable/closing, sliding type anodized extruded aluminium doors conforming to IS:1948, IS:1949 fabricated from extruded sections of HINDALCO/JINDAL or equivalent make having minimum 3mm wall thickness as per IS:1285, IS:733 and anodized and electro color coating of required shade as per IS 1868 ( minimum anodized coating of grade AC15 ), fixed with rawl plugs, expansion fasteners,SS screws / fixing clips necessary filling of gaps at junctions, at top, bottom & sides with required PVC / neoprene felt for bi-metallic protection etc. Glazing shall be toughened sheet glass of 6mm thickness including snap fit type beading, concealed screws, fixtures, Godrej or equivalent make Mortice lock with handle on both sides, etc all complete. Aluminium section shall be smooth, free of stains, straight, mitred & jointed mechanically wherever required. (Glazing shall be paid separately) Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	SQM	125			0.0662897742
A907	Providing and fixing automatic closing fire proof steel doors (single or double shutter) with vision panel, panic devices shall be 45mm thk flush design comprising of two outer sheets of 18 gauge steel sheets rigidly connected and reinforced inside with continuous vertical 20 gauge stiffeners, spot welded in position at not more than 150mm on centers including all fittings, shop painting with approved post office/signal red color fire resistant paint and mineral wool insulation (64 kg/cum density) complete and shall be fire proof as per IS:3614, NBC 2016 & TAC requirements and as per specification. Vision panel shall be provided with interlayered fire rated glass. Minimum ratings shall be 2 Hrs. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	SQM	130			0.1015089015
908	Providing and fixing steel windows/ventilator with steel sections as per IS:1038, IS:1361 & IS:7452 latest revision including all fittings, metal beadings, hold fasts, shop and final painting ,glazing etc. all complete. (Glazing shall be paid separately) Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%					
a	Openable type	SQM	60			0.0060424275
909	Providing and fixing anodised aluminium work of Jindal, Hindalco or other equivalent approved make for door frames, windows, ventilators, partitions, railing etc with extruded standard tubular and other sections including all fittings & fixtures and accessories of approved make conforming to IS733 and IS1285, anodised and electro color dyed to required shade according to IS 1868 (minimum anodic coating of grade AC15), fixed with rawl plugs, expansion fasteners, SS screws or with fixing clips, including necessary filling of gaps at junctions, at top, bottom and sides with required PVC/neoprene felt for bi-metalic protection etc. including preperation of working drawings, aluminium cleat angle, aluminium snap-on-beading for glazing/panelling, stair case tread nosing, with all fittings and fixtures (like tower bolts, handles, door stopper with rubber shoes, 'L' drops, stays, floor springs, hydraulic door closures etc.), CP brass/stainless steel screws, providing and fixing hinges/pivots, and making provision for fixing of fitting wherever required including cost of PVC/neoprene gasket, all complete as per drawing, specification and instructions of engineer in charge (Glazing and panelling shall be paid seperately).Weight of aluminium section only shall be measure. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	Kg	27050			0.6748611094
A909	Providing and fixing powder coated aluminium work of Jindal, Hindalco or other equivalent approved make for door frames, windows, ventilators, partitions, railing etc with extruded standard tubular and other sections including all fittings & fixtures and accessories of approved make conforming to IS733 and IS1285, powder coated in required shade with minimum thickness 50 micons according to relevant IS , fixed with rawl plugs, expansion fasteners, SS screws or with fixing clips, including necessary filling of gaps at junctions, at top, bottom and sides with required PVC/neoprene felt for bi-metalic protection etc. including preperation of working drawings, aluminium cleat angle, aluminium snap-on-beading for glazing/panelling, stair case tread nosing, with all fittings and fixtures (like tower bolts, handles, door stopper with rubber shoes, 'L' drops, stays, floor springs, hydraulic door closures etc.), CP brass/stainless steel screws, providing and fixing hinges/pivots, and making provision for fixing of fitting wherever required including cost of PVC/neoprene gasket, all complete as per drawing, specification and instructions of engineer in charge (Glazing and panelling shall be paid seperately).Weight of aluminium section only shall be measure. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	Kg	4644			0.1100684748

PART-B						
PROJECT: 1X800 MW NTPC SIPAT TPS, CHATTISGARH, INDIA						
BOQ CUM RATE SCHEDULE (PRICE BID)						
ST NO	ITEM DESCRIPTION	UOM	TOTAL QTY	RATES = TOTAL QUOTED PRICE * WEIGHTAGE / (QUANTITY * 100)	AMOUNT (INR) = RATE * QUANTITY	WEIGHTAGE IN % (UPTO 10 DECIMAL POINT)
A910	Providing, fabricating, designing, supplying and fixing of Aluminium composite panel cladding (ACP) in pan shape in solid or metallic colour of approved shades made out of 4mm thick aluminium composite panel (weight of panel should be 7.5 kg/sqmt) material consisting of 3mm thick FR grade Class A2 as per EN 13501,mineral core sandwiched between two Aluminium sheets (each 0.5mm thick).The aluminium composite panel cladding sheet shall be coil coated, with Kynar 500 based PVDF conforming to AAMA 2605 or Lumiflon based fluoropolymer resin coating of approved colour and shade on face # 1 and polymer (Service) coating on face # 2 as specified using stainless steel screws, nuts, bolts, washers, cleats, weather silicone sealant, backer rods etc. The top coated surface of ACP shall comply with the "specification for coated coil for the exterior building application" issued by ECCA (European Coil Coating Association). The aluminium composite panel top and bottom skin should conform to Aluminium Alloy 5005 (AlMg 1) marine grade series and H 22/24 temper with mechanical properties confirming to EN 485-2 standard. The ACP product must conform to either BS 476 part 6 & 7 or ASTM E 84 standards along with EN-13501-1. The manufacturer must furnish Class 1A certificate for this ACP produced in the plant from which it is going to be supplied. The panel shall be designed for 12mm groove in horizontal & in verticals with close joint system. Vertical & Horizontal groove shall be filled by non-staining high performance weather sealant. ACP panel shall have sub frame all around panel and aluminium stiffener profile as per structural requirements. The finished surface of ACP shall be protected with a self-adhesive (Rubber based) peel off foil with 70 microns thickness white or black, tested to withstand up to 6 months' exposure to local weather condition without losing the original peel off characteristic or causing stain or other damages on the coated surface of the aluminium composite panel. Installation of ACP Coping/facia at terrace level sealing the top gap of the parapet wall and ACP Panel shall have Gl stiffeners below with required aluminium grid work with necessary MS HDG / aluminium alloy brackets & SS fasteners.2nd barrier of 1mm thk Gl sheet laid continuously below the coping to seal the parapet wall. Overlap of Gl sheet shall be properly sealed with weather sealant, All shade approval shall be as per Architect's Approval.as per approved sample from Alucobond Plus, Aludecor,Alpolic or equivalent. The system shall be designed to withstand a wind pressure of 200kg/Sqm or as per design requirement and shall be fixed to the Masonry/RC walls or aluminium frame with necessary clamps, brackets and anchor fasteners etc. All clamps and brackets shall be Hot dip galvanized minimum 80 microns thick and shall conform to IS: 4759-1996. The extruded aluminium section shall be anodized in approved colour with a anodic coating of minimum 20 microns. Extruded section shall be 6063 T5 or T6 alloy conforming to ASTM B221. Any other festering straps, nuts, bolts, rivets, washers, etc. shall be in stainless steel SS316 grade. EPDM gaskets, open cell polyethylene backer rods, weather sealant etc. shall be provided as per requirement. Item shall include aluminium base frame with all fixing arrangements to wall/RC members, fastening material and hardware(festering straps, nuts, bolts, rivets, washers etc.), EPDM gaskets, open cell polyethylene backer rods, weather sealant, scaffolding, approach to all height, material handling, transportation, labour, T&P, preparation of working drawings etc.all complete as per drawing, specification & instructions of engineer in charge. Measurement of payment shall be outer finished area of ACP panel.The contractor shall provide the material cutsheet/ declaration from manufacturer mentioning the recycled content used in maufacturer of ACP. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	SQM	3955			0.6239552351
911	Providing and fixing of door closers as per IS 3564 ,of approved make & quality all complete of following type : Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%					
a	Over head hydraulic door closures	Each	20			0.0016720895
b	Floor mounted Hydraulic door closers	Each	20			0.0023630671
912	Providing and fixing pressed steel frames fabricated from 16 gauge M.S sheet mortised, reinforced drilled and tapped for hinges and locks bolts strikes, hold fasts adjustable floor anchors, floor tiles/weather bars ,paintings etc all complete as per specifications. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	Kg	750			0.0051250689
A912	Providing and fixing pressed steel frames (complying general requirements of IS 4531) fabricated from 1.6 mm thick M.S sheet mortised, reinforced drilled and tapped for hinges and locks bolts strikes, hold fasts adjustable floor anchors, floor tiles/weather bars ,paintings etc all complete as per specifications. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	Kg	9886			0.0675552409
913	Providing and fixing in position rolling shutter of hot rolled double dipped galvanised steel lath section of 18 SWG tested mild steel strips at 75mm rolling centres interlocked together through their entire length and jointed together at the end by end locks mounted on specially designed pipe shaft with brackets, side guides and arrangements for inside and outside locking with push and pull operation including wire springs, top cover, primer & shop coats of approved enamel paint etc, all complete as per IS 6248 and specification of approved make of following types: The bottom lath shall be coupled to a lock plate fabricated from 3mm thick galvanised steel plate and securely rivetted with stiffening angles.(partly coiled and lath/full lath). Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%					
c	Electrically operated	SQM	390			0.0619062507
915	Providing, fixing and fitting of glazing of first grade class in steel/aluminium/wooden frames, where ever required, cleaning after fixing including hardware, gaskets, clips, beadings etc. all complete. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%					
c	6 mm thick clear float glass	SQM	250			0.0180284079
Ad	6 mm thick toughened glass	SQM	4358			0.3574851742
Bd	6 mm thick toughened tinted glass	SQM	290			0.0249780256
e	Providing and fixing of 3.0mm (min.) thick fire retardant and UV resistant polycarbonate clean toughed profile sheet of approved make conforming to IS 14434 in cladding and roof as per specification all complete.	SQM	645			0.0642666456
h	6 mm thick clear toughened safety glass	SQM	240			0.0230244434
Ah	8 mm thick toughened glass	SQM	1503			0.1504433382
Bh	10 mm thick toughened glass	SQM	618			0.0679897787
i	Two nos. 6 mm thick clear toughened float glass hermetically sealed and separated by 12 mm thick air gap for thermal insulation (only single elevation area to be measured)	SQM	152			0.0219689655
Ak	One outer 6mm thick tinted heat-reflecting type toughened glass and one inner 6mm thick plain float glass separated by 12mm air-gap and hermetically sealed by beading of anodized aluminium with outer edge sealed with silicon sealant all complete as per specification, drawings and as per direction of Engineer-in-charge. Outer glass of 6mm thickness shall have following technical characteristics: Solar factor 25% or less, Maximum U-value 3.3 W/ SQMK, VLT min 30%: Light reflection internal 10 to 15%, light reflection external 10 to 20 % , shading coefficient (0.25- 0.28). The glass to be used should be from the manufacturers of glass like Saint Gobain (India) or Asahi (India) or equivalent. The glass should be free from distortion and thermal stress.	SQM	250			0.0401893202

PART-B						
PROJECT: 1X800 MW NTPC SIPAT TPS, CHATTISGARH, INDIA						
BOQ CUM RATE SCHEDULE (PRICE BID)						
ST NO	ITEM DESCRIPTION	UOM	TOTAL QTY	RATES = TOTAL QUOTED PRICE * WEIGHTAGE / (QUANTITY * 100)	AMOUNT (INR) = RATE * QUANTITY	WEIGHTAGE IN % (UPTO 10 DECIMAL POINT)
A923	Providing and fixing Electrically operated, self operable/closing, G.I. framed with fire resistant glass, sliding doors with Fire resistant glazed door system shall be of uniform profile 50X50 mm with 14mm EI 20 glass for Interior application. Fire Resistant Glazed Door System shall have 120 minutes of integrity and radiation control (EW 120) with symmetrical (Bi-Directional) fire protection. The frames shall be cold rolled profiles as per EN standard EN 10327/ Indian Standard IS 513 . The door frames are cold rolled from 1.5 mm steel sheet to form a profile of 50 mm x 50 mm on all sides. The door shutter shall have the top rail, side rail and bottom rail dimensions of 50 mm x 50 mm. The overall door opening shall be as per tested evidence and tested as per EN 1634-1/ ISO 834- 1 / ISO 3009 /(Indian Standard ) IS 16947:2018 in an accredited laboratory. The glass must be minimum 14mm thick , clear (MADE IN INDIA )120 min fire rated for Integrity, Radiation control (EW 120) and partially insulation (EI 20) Non Wired Toughened Interlayered glass with a light transmission of 86% and a sound reduction of 37 dB and manufactured in UL & TUV audited Facility and including UL-EU Certification and compliant to class 1(B)1 category of Impact Resistance as per EN 12600. The glass shall be tested and certified for no formation of bubbles or yellowing after 5000 hours of exposure to UV radiation by TUV Rheinland as per EN 12543-4. The base glass and finished glass shall be made in India. The shutters shall be fixed to the frame using Weld-on hinges of dimensions 179mm X 20mm. The profiles shall have grooves to incorporate Fire Resistant gaskets. The glass shall be held in its place with the help of 1.5 mm cold rolled steel beading and Kerafix 2000 ceramic tape with cross section of 4 x 15 mm as per the test evidence. Beading shall be clipped on using Stainless Steel self-tapping screws fixed at a distance of 70 mm from the edges and 150 mm c/c henceforth. The glass panes are to be supported on non-combustible 6 mm Calcium Silicate setting blocks. The door shall be fitted with offset pull handle and door closer of Dorma (TS 73V, TS 83V, TS93V), Geze (TS 2000NV) or equivalent. The inactive leaf ( in case of double leaf only )shall be fixed to the frame using a tower bolt at meeting edge at top or as per the tested evidence. The doors shall be manufactured in a TUV audited facility. The maximum glazing size shall be as per the test certification. The profile shall be fixed to the supporting construction by means of M10 or bigger steel bolts at every 150 mm from the edges and every 500 mm (approx.) c/c. The doors shall offer C4 level of wind resistance when tested as per EN12211 and shall provide class 4 level of air permeability as per EN 1026. The door shall also be subjected to durability tests as per EN 12400 for C5 classification (200,000 cycles). The doors shall also be tested for class 5 of impact resistance when tested as per EN 13049. The doors & partition shall also be tested for class 4 level of Mechanical strength when tested as per EN13115. The door shall have water tightness level of 8A when tested as per EN 1027. Fire Rated Door (swing / sliding) shall be of Makes- Saint Gobain, Acodcor, IGI, Matrix. all complete as per specification.(item includes the cost of glazing) Design,Shop drawings along with hardwares for the item with all construction and anchoring details, etc.along with fire rating test reports shall be got approved before execution.	SQM	30			0.0904173560
A927	Providing & fixing minimum 30mm thick Hermetically sealed double glass unit (DGU) of Fire resistant of min 14mm thick clear, toughened, interlayered 120 minute fire rated for both integrity & radiation control and 6 mm thick toughened tinted glass with 10 mm gap and with suitable fire resistant frame of 1.6 mm thick powder coated steel sheet with outer edge sealed with silicon sealant all complete as per specification, drawings and as per direction of Engineer-in-charge. The glass to be used should be from the manufacturers of glass like Saint Gobain (India) or Asahi (India) or equivalent. The glass should be free from distortion and thermal stress. The glass shall be 14 mm(minimum) ( MADE IN INDIA ) clear 120 min fire rated for Integrity, Radiation control (EW 120) and partially insulation (EI 20) Non Wired Toughened Interlayered glass with a light transmission of 86% and a sound reduction of 37 dB and manufactured in UL & TUV audited Facility and including UL-EU Certification and compliant to class 1(B)1 category of Impact Resistance as per EN 12600. The glass shall be tested and certified for no formation of bubbles or yellowing after 5000 hours of exposure to UV radiation by TUV Rheinland as per EN 12543-4 The glass shall provide bi-directional (Symmetrical) fire protection. The base glass and processed glass must be made in INDIA. The glass shall be held in its place with the help of 1.5 mm cold rolled steel beading and Kerafix 2000 ceramic tape with cross section of 4 x 15 mm as per the test evidence. Beading shall be clipped on using Stainless Steel self-tapping screws fixed at a distance of 70 mm from the edges and 150 mm c/c henceforth. The glass panes are to be supported on noncombustible 5 mm Calcium Silicate setting blocks. The maximum glazing size shall be as per the test certification. The profile has to be fixed to the supporting construction by means of M10 or bigger steel bolts at every 150 mm from the edges and every 500 mm (approx.) c/c. The Partitions shall offer C4 level of wind resistance when tested as per EN12211 and shall provide class 4 level of air permeability as per EN 1026. The Partitions shall also be tested for class 5 of impact resistance when tested as per EN 13049. The Partitions shall also be tested for class 4 level of Mechanical strength when tested as per EN13115. The Partitions shall have water tightness level of 8A when tested as per EN 1027. Partitionr shall be of Makes - Saint Gobain,Acodcor , IGI , Matrix ,Tata Pravesh. (Stainless steel sheet shall be paid separately) Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	SQM	225			0.2185086464
A928	Providing and fixing of fully glazed steel door with 120 minutes fire rating, of integrity and radiation control (EW 120) fabricated with 1.6 mm thick galvanized steel sheet. The door frames are manufactured from 1.6 mm galvanized steel sheet (zinc coating not less than 120 gm/sqm) pressed to form a profile of 35 mm x 60 mm on the vertical sides and 50 x 60 mm on the horizontal side. The door shutter would have a top rail and side rail 60 mm x 60 mm and a bottom rail of 110 mm x 60 mm. The frame shall be finished with approved fire resistant primer or Power coating of min. 30 micron as per approved shade.The sections have a special insulating infill.The test is conducted in IFTS as per EN 1634-1: 1999.The glass panels shall be interlayered minimum 14mm thick, 120 minute fire rating and partially insulated (EW120), with 30 minute full insulation, Non Wired Toughened Interlayered glass, with a light transmission of 86% and a sound reduction of 37 dB and manufactured in UL & TUV audited Facility and including UL-EU Certification. The glass should be compliant to class 1(B)1 category of Impact Resistance as per EN 12600. The glass should be held in its place with the help of 1.6 mm GI beading and a special ceramic tape with cross section of 5 x 20 mm as per the test evidence. The shutters should be fixed to the frame using Dorma SS Ball Bearing Hinges of size 100 mm x 89 mm and 3 mm thickness or equivalent. Beading should be attached using 4 mm x 35 mm SS screws at a distance of 75 mm from the edges and 150 mm c/c henceforth. The door should be fitted with Dorma Mortise Sash lock 952F and door closer TS 68 of Dorma make or equivalent. The inactive leaf should be fixed to the frame using 1200mm long tower bolt.all complete as per specification and Design,Shop drawings, along with hardwares for the item with all construction and anchoring details along with fire rating test reports shall be got approved before execution. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	SQM	25			0.0287077248
A929	Providing and fixing Mullion-less glass partition with 12mm thk toughened float glass fixed with Dorma make stainless steel patch fittings including cutting, making holes, cutouts in the glass of required shape and size to accommodate fittings and fixing the fittings in floors, soffits, jams including necessary fixtures, screws, ss handles 1000mm long .C Shape (both side),sealant wherever required and SS cover over patch fittings.The glass panels shall be easily removed and refitted (during breakage) without using any special tools. The junction of glass to glass shall be properly secured using extruded PVC or sealant.Shop drawings for the item with all construction and anchoring details shall be got approved before execution. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	SQM	100			0.0502318830
A930	Providing and fixing motorized curtain (operated with remote control also) mechanism at all heights. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	SQM	100			0.0945753293
A931	Providing and fixing SS Logo/Signature ICON of NTPC as per Guidelines of "Client" complete in all aspects. Logo to be fabricated in Stainless steel finish as per approved Pantone Shades of Client Guidelines along with proper provision of fixing arrangement of Logo on Partition Surface/Glass Surface/Acrylic Surface etc.Shop drawings for the item with all construction and anchoring details shall be got approved before execution, all complete as per specification and approved by Engineer incharge. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	LS	1			0.0005418124

PART-B						
PROJECT: 1X800 MW NTPC SIPAT TPS, CHATTISGARH, INDIA						
BOQ CUM RATE SCHEDULE (PRICE BID)						
ST NO	ITEM DESCRIPTION	UOM	TOTAL QTY	RATES = TOTAL QUOTED PRICE * WEIGHTAGE / (QUANTITY * 100)	AMOUNT (INR) = RATE * QUANTITY	WEIGHTAGE IN % (UPTO 10 DECIMAL POINT)
A932	Providing,fixing & Installation of manually operated,frameless Vertical Roller venetian blinds with premium fabric quality with 5% openness factor HARDWARE; TOP TUBE : Made of extruded aluminium with 38 mm Dia. and wall thickness of 1.2 mm with spline adoptable to accommodate. CLUTCH MECHANISM : Moulded plastic having self lubrication with Glass fibre reinforcement, having a minimum lifting capacity of 8 lbs weight capacity - 8 lbs Head adoptability - 38 mm OPERATING CHAIN: PLASTIC / STEEL ball chain adoptable to the clutch pitch for smooth operation of blinds. LOCKING MEMBER : Plastic/ steel stop locks for limit setting adoptable to the steel chain. Bonding ( Fabric > Tube ) : 30/36 mm wide double sided adhesive tape of 3M for strong holding capacity. SPRING BOOSTERS: provided as per the requirement Bottom Bar : aluminium extruded circular section with powder coated finish, having a Min. weight to be 365 gms / Rmt for a perfect fall of fabric to avoid warpage / floating. Ends are covered with end caps to give a perfect finish,installation at site at all heigt complete s per approved sample and instruction of engineer incharge. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	SQM	100			0.0161215388
1000	BRICKWORK: Brickwork masonry including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, scaffolding etc. at all levels as per specification, drawings and as directed by engineer - in - charge.					
1001	Providing brick work in cement mortar 1:6 (1 part cement 6 parts coarse sand) in walls, chambers etc. in thickness varying from 230mm to 460mm at all depths, places and positions below plinth including raking out joints,curing, scaffolding etc.complete excluding plastering and painting.					
a	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm2(including cost of cement for brick making)	CUM	4715			1.0517269281
1002	Providing brick work in cement mortar 1:6 (1 cement 6 coarse sand) in walls, chambers etc. in thickness 230mm upto 10m level above finished floor level (For height greater than 10m from FFL, extra over for additional height to be paid in Item No 1014), places and position above plinth including raking out joints, curing, scaffolding etc complete but excluding plastering and painting.					
a	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm2(including cost of cement for brick making)	CUM	6572			1.9112783189
c	Using burnt clay bricks of class designation 7.5 of nominal dimension	CUM	250			0.0833945096
1003	Providing brick work in cement mortar 1:4 (1 cement 4 coarse sand) in partition walls, chambers etc. in thickness 115mm upto 10m above finished floor level (For height greater than 10m from FFL, extra over for additional height to be paid in Item No 1015), places and position above or below plinth/graded level including providing two nos. 6 mm diameter MS bars at every fourth layer, raking out joints, curing, scaffolding etc complete excluding plastering and painting as per specification. (Reinforcement payment shall be made seperately as per applicable BOQ in 400 Series)					
a	Using fly ash lime bricks confirming to IS 12894 with crushing strength of 75 kg/cm2(including cost of cement for brick making).	SQM	3276			0.1174342817
A1003	Providing factory made factory made composite modular light weight aerated concrete panels, (minimum 2 hours of fire rating) consisting of 2 fiber reinforced cement sheets (minimum 4 mm thick) on either side of light weight concrete core, having minimum compressive strength of 35 Kg / Cm2 and the density in the range of 700-900 Kg. / cu.m. of the thickness and fire rating as specified below, to provide external wall and internal partition at all levels, capable of sustaining wind pressure of 3.00 M height (H) within limiting deflection of span/250, fixed in position in tongue and groove jointing system by screwing the panels to top and bottom U channels, (channels minimum 1.25 mm thick and galvanised to grade 180 (minimum) as per IS : 277), fixing U profiled top and bottom channels to concrete / primary steel members which are placed at the maximum vertical spacing of 4.5m with the help of galvanised steel expansion fasteners, filling the joints from both faces with silicon acrylic paste and making the same water tight by covering with fibre glass tape (minimum 50 mm wide and minimum 0.5 mm thick) or by any other suitable material, so as to ensure that the entire construction done with the light weight aerated concrete panels are weather proof and panel surfaces are flush for painting, creating opening for doors / windows /ventilators / ducts / pipes/fans/AC etc. and finishing the opening face with the same U profiled galvanized steel channel which is used at the top and bottom. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	SQM	275			0.0230229294
1005	Breaking of existing brick work at all levels including plastering, removing the rubbish up to a distance of 500 m including transportation, loading, unloading etc. all complete as directed by the engineer.	CUM	38			0.0029709747
1006	Providing and encasing of structural steel member with masonry work around flanges, webs etc. and filling the gap between steel and masonry by minimum 12mm thick mortar of 1:6 upto 10m level above finished floor level (For height greater than 10m from FFL, extra over for additional height to be paid in Item No 1014). Encased member shall be wrapped with chicken wire mesh with 50mm lap etc. complete as per specification. (Chicken wire mesh to paid separately)					
b	Using burnt clay bricks of class designation 7.5 of nominal dimension	CUM	50			0.0140008864
1007	Providing and laying 75 mm thick bed of dry brick aggregate including of excavation, disposal of surplus earth spreading of earth, ramming, watering etc. complete in all respects as directed by the engineer.	SQM	25			0.0001908778
1008	Making openings in existing brick wall or partition wall including making good the broken edges/surface with cement mortar 1:6 etc. complete.	CUM	2			0.0001797305
1010	Filling existing brick wall/ partition wall opening at all level including making good the broken edges/surface with cement mortar 1:6, painting, finishing to match with existing finishing, scaffolding/supporting at any level, removal of debris upto a lead of 1 km including loading, unloading, transportation etc. all complete.	SQM	2			0.0000816193
A1013	Providing and laying Autoclave Areated concrete (AAC) blocks having dimensions of 625 mm x 250 mm. thickness ranging from 100 mm to 300 mm conforming to I.S. :2185(part III) in walls, chambers etc. at depths, places and position above plinth, including horizontal and vertical joint thickness approximately 10 mm,raking out joints, curing, scaffolding etc. complete excluding plastering and painting all complete as per specification and drawing. The jointing cement sand mortar in the composition of 1: 6 (Cement: sand) shall be used with suitable plasticizer(optional). Sand having modulus of fineness 1.1 shall be used. The horizontal and vertical joint thickness shall be approximately 10 mm. In case of partition walls (100 mm /125 mm thk) the joint reinforcement i.e. 1 number of 6-8 mm diameter bars shall be placed at every alternate course to be anchored properly with the main structure. All other structural requirements like stiffening of masonry, joint reinforcement etc. in the AAC masonry work strictly be carried out as per instructions laid down in IS 6041 – 1985, IS - 1905. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	CUM	990			0.2116819946
1014	Extra over item no. A1002, 1006, 1012 & 1013 for height above FFL (Finished Floor Level) as per following:					
a	Height exceeding 10m from FFL but not exceeding 20m	CUM	1512			0.0492282524
b	Height exceeding 20m from FFL but not exceeding 30m	CUM	1337			0.0783328599
c	Height exceeding 30m from FFL but not exceeding 40m	CUM	25			0.0019536343
d	Height exceeding 40m from FFL and above	CUM	13			0.0011395404
1015	Extra over item no. 1003 for height above FFL (Finished Floor Level) as per following:					
a	Height exceeding 10m from FFL but not exceeding 20m	SQM	125			0.0002624570
b	Height exceeding 20m from FFL but not exceeding 30m	SQM	125			0.0004724225
1100	DAMP PROOF COURSE: Damp proof course including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, shuttering, centering, curing etc at all level as per specification, drawings and as directed by engineer - in - charge.					
1101	Providing Damp Proof Course of following thickness with 1:1.5:3 concrete (10mm and down graded aggregate) with 2% of approved admixture of water proofing compound all complete. Two layers of hot bitumen coating 85/25 grade as per IS:702 @ 1.7Kg./sqm shall be applied one before & one after the DPC.					

PART-B						
PROJECT: 1X800 MW NTPC SIPAT TPS, CHATTISGARH, INDIA						
BOQ CUM RATE SCHEDULE (PRICE BID)						
ST NO	ITEM DESCRIPTION	UOM	TOTAL QTY	RATES = TOTAL QUOTED PRICE * WEIGHTAGE / (QUANTITY * 100)	AMOUNT (INR) = RATE * QUANTITY	WEIGHTAGE IN % (UPTO 10 DECIMAL POINT)
b	50mm thick	SQM	2093			0.0266870829
1200	PLASTERING: Cement mortar plaster including making grooves wherever required including all labour, material (unless otherwise specified in BOQ/contract specification), scaffolding, curing etc at all level as per specification, drawings and as directed by engineer - in - charge.					
1201	Providing 18mm thick plaster in two layers outside the building/boundary wall in cement mortar as applicable upto 10m above finished floor level (For height greater than 10m from FFL, extra over for additional height to be paid in Item No 1206) on walls, finished to a smooth finish including providing 3mmx3mm size grooves at junctions of two dissimilar materials all complete					
a	Cement Mortar 1:6	SQM	43195			0.5689026852
1202	Providing 12mm thick plaster internal/external surfaces of building/boundary wall in cement mortar as applicable above finished floor level (For height greater than 10m from FFL, extra over for additional height to be paid in Item No 1206) on walls finished to a smooth finish as per specification all complete.					
a	Cement Mortar 1:6	SQM	41281			0.4412590755
1204	Providing 6mm thick plaster on ceiling in cement mortar 1:4 finished to a smooth all complete.	SQM	17296			0.1617696967
1206	Extra over Item 1201 to 1202 for plastering on exterior walls over & above 10m height from FGL.					
a	Height exceeding 10m from FGL but not exceeding 20m	SQM	15754			0.0288680527
b	Height exceeding 20m from FGL but not exceeding 30m	SQM	15754			0.0517219277
A1207	Forming groove of uniform size from 12X12 mm upto 20X15 mm in plastered surface as per approved pattern, using wooden battens nailed to the under layer, including removal of wooden battens, repair of the edges of plaster panel and finishing the groove etc. complete as per specification, drawing and the instructions of engineer in charge.	RM	1000			0.0015270224
A1208	Providing and laying encasement to box type steel beams at all levels with lath plaster 50 mm nominal thickness with cement plaster (1:4) over 0.9 mm thick G.I. chicken wire mesh including all labour, materials, equipment, handling, transporting, mixing, placing, leveling, curing and cleaning, finishing the exposed surfaces etc including centering and shuttering all complete as per specification, drawing and instructions of engineer in charge (chicken wire mesh to be paid separately)	SQM	50			0.0011414492
1300	FINISHES TO CONCRETE / PLASTERED SURFACES: Finishes, painting to concrete, plastered surfaces including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, surface preparation, scaffolding etc. at all level as per specification, drawings and as directed by engineer - in - charge.					
1301	Two or more coats of white wash/ colour wash as per IS 627 of approved brand and manufacture to give an even shade including a priming coat as per specifications.	SQM	14151			0.0212847603
1304	Two or more coats of acrylic distemper of approved brand and manufacture to give an even shade including a priming coat with distemper primer complete.	SQM	12000			0.0509414665
A1304	Two or more coats of Low VOC (volatile organic compound) acrylic distemper of approved brand and manufacture to give an even shade including a priming coat with distemper primer complete. All necessary documentation (certificates, manufacturer declarations) should be provided by the contractor to engineer in charge	SQM	43963			0.2052911385
1305	Providing and applying two or more coats of acrylic emulsion paint as per IS 5411 of approved brand, shade and manufacture to give smooth, hard, durable & glossy finish over a coat of primer over prepared plaster surface as per manufacturers guideline.	SQM	120			0.0007366356
A1305	Providing and applying two or more coats of low VOC (volatile organic compound) acrylic emulsion paint as per IS 15489, relevant latest code of approved brand, shade and manufacture to give smooth, hard, durable & glossy finish over a coat of primer over prepared plaster surface as per manufacturers guideline. Note: The paint should have VOC content limit less than 50 grams per litre. All necessary documentation (certificates, manufacturer declarations) should be provided by the contractor to engineer in charge.	SQM	2750			0.0185693556
A1306	Providing and applying 2 or more coats of oil resistant paint (epoxy based & minimum 150 micron thickness) of approved brand and colour to floors, walls and ceiling including preparation of surface to receive paint, providing and applying primer complete all as per manufacturer's recommendations and as approved by engineer, at all heights above or below grade level, complete as per specifications.	SQM	2225			0.0172379978
1312	Providing and applying 3 coats of water proof cement paint of approved make and color on exterior surface at all heights including material, labour, scaffolding, curing etc including primer coat complete as per specification.	SQM	31630			0.1100026073
1316	Providing and applying 2 mm thick plaster of paris punning on walls including preparation of surface, staging, etc. to achieve a smooth even surface all complete as per specification and as directed by Engineer.	SQM	25857			0.1354308665
1317	Providing and applying 2 mm thick white cement punning on walls including preparation of surface, staging, etc. to achieve a smooth even surface all complete as per specification and as directed by engineer.	SQM	14906			0.0648711174
A1319	Providing and applying two or more coats of Premium Acrylic Smooth Paint with Silicone additives weather coat paint of approved brand and manufacture and required shade over one coat of primer after necessary cleaning/ washing, preparing the surface using coir brush/ wire brush, sand paper, including filling of cracks with putty wherever required etc. all complete to give smooth, hard, durable & glossy finish over a coat of primer over prepared plaster surface as per manufacturers guidelines. The final finished coating shall be fungus resistant, UV resistant, water repellent and extremely durable with color fastness as per specification.	SQM	41631			0.2388404764
1400	FLOORING AND SKIRTING: Flooring and skirting at all level including base layer, labour, material (unless otherwise specified in BOQ/contract specification), equipments, transportation, handling, curing, polishing etc. at all level as per specification, drawings and as directed by engineer - in - charge.					
1401	Providing and laying 50 mm thick heavy duty cement concrete in flooring with metallic hardener pigmented topping 12mm thick uniform graded treated iron particles in flooring. Under layer of 38mm thick cement concrete mix 1:2:4 (1 cement: 2 sand: 4 stone aggregates 12.5 mm well graded) and top layer of 12mm thick metallic concrete of mix 1:2 (1 cement hardner mix with approved quality metallic hardening compound: 2 stone aggregate 6mm nominal size) by volume including cement slurry, rounding off edges, aluminium strips etc. all complete for following (Quoted item rate shall be inclusive of providing glass joint strips):	SQM	57730			1.3708102792
1403	Providing and laying precast polished heavy duty cement concrete tiles (Carborundum topping pigment content is 3.5 kg per 50 Kg of Cement) of size 300X300X25 thick of approved shade as per IS 1237, including minimum 20mm cement mortar bedding of 1:3 (1 cement : 3 sand) jointed with neat cement slurry@4.4 kg/sqm, labour, materials, etc. all complete with pigment to match the shade of the tiles including rubbing, curing, grinding and polishing complete with laying as per IS 1443 etc. (inclusive of cost of cement for tiles manufacturing) all complete for following: Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%					
a	Laid in floors	SQM	5640			0.2430851653
1404	Providing and laying interlocking M30 Grade concrete blocks in paving with approved colour and pattern and should be laid on the subbase and bedding of sand minimum 50mm thick as per specifications and recommendations of manufacturer. (inclusive of cost of cement for paver manufacturing) Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%					
a	60mm	SQM	3000			0.0826882618
A1404	Providing and laying interlocking M35 Grade concrete blocks confirming to IS:15658 in paving with approved colour and pattern and should be laid on the subbase and bedding of sand minimum 50mm thick as per specifications and recommendations of manufacturer. (inclusive of cost of cement for paver manufacturing). Kerb blocks or concrete block specified for various uses shall be precast blocks made of alkali-activated concrete / Geopolymer concrete as per IS:17452- 2020. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%					
a	80mm	SQM	5417			0.1747324405

PART-B						
PROJECT: 1X800 MW NTPC SIPAT TPS, CHATTISGARH, INDIA						
BOQ CUM RATE SCHEDULE (PRICE BID)						
ST NO	ITEM DESCRIPTION	UOM	TOTAL QTY	RATES = TOTAL QUOTED PRICE * WEIGHTAGE / (QUANTITY * 100)	AMOUNT (INR) = RATE * QUANTITY	WEIGHTAGE IN % (UPTO 10 DECIMAL POINT)
A1412	Providing and laying 18-20 mm thick polished Granite stone of approved color and texture in flooring with brass/ stainless steel strips. Under bed shall average 30 mm thick of 30mm thk of 1 cement : 1.5 sand : 3 stone aggregate by volume and brought to proper level. The granite stone slabs/tiles laid over under bed, pressed and tapped down with wooden mallet to the proper level, lifted and pressed again with thick cement slurry spread over the surface with fine joint finished including pigments, curing, grinding, moulding, cornice, granite polishing etc. all complete.Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	SQM	1627			0.1957820854
A1416	Providing and laying vitrified ceramic tiles of polished variety of size 600x600 with Matt/ digitally Glazed from reputed / approved manufacturer, complete including underbed of cement mortar 1:4 average 40mm thick underbed for flooring and 20 mm thick underbed with cement mortar 1:3 for dado/skirting with neat cement slurry @3.3Kg/sqm etc. all complete for following: Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%					
b	10mm thick tiles In flooring	SQM	5890			0.2950085072
c	7mm thick tiles In skirting and dado upto specific height	SQM	238			0.0108120819
E1416	Providing and laying Double Charged, of size 600x600 / 800x800 of Kajaria/ Somany/ NITCO / Johnson /RAK or equivalentfrom reputed / approved manufacturer, complete including underbed of average 40 mm thick cement concrete mix 1:1.5:3 (1 cement: 1.5 sand : 3 stone aggregates 12.5mm well graded) with 3mm groove joints as per approved pattern pointed neatly with 3X4mm stainless epoxy grout SP- 100 of Laticrete, Luxtux or approved equivalent in approved colour to match colour of tile etc. all complete for following. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%					
a	9.00mm thick tiles In flooring	SQM	133			0.0067464773
1417	Providing and laying vitrified ceramic tiles of matt finish of size 600x600mm from reputed / approved manufacturer complete including underbed of cement mortar 1:3 minimum 20mm thick underbed for flooring and 12mm thick underbed for dado/skirting with neat cement slurry @3.3Kg/sqm etc. all complete for following: Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%					
b	10mm thick tiles In flooring	SQM	30			0.0015346575
A1417	Providing and laying vitrified ceramic tiles of matt finish of size 1000x1000mm from reputed / approved manufacturer including underbed of cement mortar 1:3 with neat cement slurry etc. all complete for following. NOTE: All vitrified tiles to be used should be with appropriate % of recycled content. The contractor to provide the material sample/ declaration from manufacturer mentioning the recycled content used in manufacturing of vitrified tiles to be used to engineer in charge)Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%					
b	9.00 mm (min.) thick tiles In flooring	SQM	1443			0.0922712816
c	7mm thick tiles In skirting and dado upto specific height	SQM	133			0.0080856789
A1418	Providing and laying 20mm thick Anti-skid, full body Vitrified Tiles of make KAJARIA/ RAK/NITCO / JOHNSON or equivalent having water absorption less than 0.5%, Modulus of Rupture more than 38N/mm2, Breaking strength more than 7500 N, Mohs scale more than 6, Abrasion resistance less than 144 mm3 and coefficient of friction more than 0.4 conforming to IS: 15622 of approved shade, colour and pattern, over under bed of 30 mm thick cement mortar / PCC properly laid leveled floor, with joints 3 to5 mm wide & 8 to10 mm deep & filled with approved Epoxy Grout mix of 0.70 kg of organic coated filler of desired shade (0.10 kg of hardner and 0.20 kg of resin per kg). complete as per specification laid in pattern of following sizes Payment Terms: a) On receipt of material site - 60% b) On complete execution as per item description - 40%					
b	600X600 mm	SQM	7914			0.9275800929
1419	Providing and laying Granite stone slab of 20mm thickness single piece for wash basin / sink slab /facia of black or approved colour including 20mm underbed of cement mortar 1:3 with cutting,making corners,moulding and opening etc. all complete. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	SQM	114			0.0190792284
A1422	Providing & fixing Acid / Alkali resistant (Chemical resistant) tiles confirming to IS:4457 in flooring/Dado and shall be laid over bitumastic lining of min 12mm thick. The tiles shall be applied with 6mm thick Potassium Silicate bedding mortar as per IS:4441, 4443 & 4832 and including preparation of surface, application of bitumen primer, curing etc. all complete for following thicknesses. The tiles should be abrasion resistant & durable.Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%					
a	12mm thick	SQM	1503			0.0747878701
b	20mm thick	SQM	593			0.0645197032
c	38mm thick	SQM	374			0.0438231264
B1424	Providing & fixing chemical resistant (AR)(Acid / Alkali) bricks (75mm thick) conforming to IS:4860 in the floor of neutralization pit. Surface on which lining to be applied shall be prepared in accordance with IS:2395. Bitumen primer as per IS:158 followed by 18mm thick bituminastic followed by 6mm thick potassium silicate mortar bedding shall be provided before laying AR bricks. The joints between AR bricks shall be filled with resin type of mortar conforming to IS:4832, part II, seal coat of readymade epoxy paint shall be provided on joints to cover up any porosity that may be left in mortar. Pointing the joints of bricks with acid / alkali resistant epoxy / furane mortar upto a depth of 20 mm End sealing shall be done all complete as per specification. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	SQM	100			0.0126322926
A1431	Providing and laying Engineered wooden flooring (15mm thick) of Mikasa/ Century/ Pergo / Equivalent with 150mm high skirting of approved color,shade all complete as per manufacturer specification. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	SQM	475			0.0521878985



PART-B						
PROJECT: 1X800 MW NTPC SIPAT TPS, CHATTISGARH, INDIA						
BOQ CUM RATE SCHEDULE (PRICE BID)						
ST NO	ITEM DESCRIPTION	UOM	TOTAL QTY	RATES = TOTAL QUOTED PRICE * WEIGHTAGE / (QUANTITY * 100)	AMOUNT (INR) = RATE * QUANTITY	WEIGHTAGE IN % (UPTO 10 DECIMAL POINT)
A1432	Providing and fixing Rubber flooring over cement concrete floor min. 4mm thick with sheet size of 602 mm x 602 mm. Rubber flooring shall conform to IS 809. Rubber flooring shall consist of 100% virgin elastomer reinforcing agents, resins, curing agents, anti-oxidants and pigments. It shall have excellent abrasion resistance and shall have class-I fire rating. It shall be acid & alkali resistant and shall be of anti static grade. In general, BS code shall apply for their technical characteristics. etc all complete as per specifications. (Cement concrete flooring to be paid separately). Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	SQM	675			0.0592084045
A1435	Providing and fixing Glass mosaic tiles at finished plain wall surface of size 24 mm x 24 mm x 3.8 mm thick (minimum) in in decorative murals and pattern of approved colour, shade, design , fixing in customize design, as per direction of Engineer-in- Charge. The glass mosaic tiles to be fixed on the vertical wall surface with the help of approved adhesive applied at the rate of 2.5 kg per sqm and grouting of the same. The rate is inclusive of all operation, material and required pattern approved by Engineer-in- Charge.. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	SQM	100			0.0093367411
A1436	Providing 5 mm thick vinyl flooring from reputed /approved manufacturer as per direction of Engineer-in- Charge. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	SQM	190			0.0054632280
1500	ROOFING / SIDE CLADDING: Roofing / side cladding work including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, scaffolding, laps, hooks, washers, corner pieces etc. at all level as per specification, drawings and as directed by engineer - in - charge.					
A1501	Designing, providing and fixing permanently color coated galvanised MS troughed metal sheet decking plate of approved colour over roof purlins for cast-in-situ roof slab as per relevant IS code and Grade as per specification. Bare metal thickness(BMT) of deck plate shall be minimum 0.8mm with minimum trough depth of 44mm of grade G250 as per AS1397/grade SS255 as per ASTM A653M/ grade S250GD as per EN 10326 with zinc coating to class Z275 and shall serve as permanent shuttering to the roof slab minimum 40mm thick measured over crest of metal decking & shall have adequate strength to support weight of green concrete and imposed loads of min 100 kg/sqm (for two span condition) during construction between beams as per manufacturer's recommendations/ calculations/ test certificates for approval including fixing of plates to beams, side lapping, end lapping etc. all complete for below mentioned spans. The sheet shall be permanently coated with silicon modified polyester(SMP silicon content 30%-50%) paint or super polyester paint of minimum 20 micron DFT on exposed surface (facing operating floor) over primer coat of minimum 5 micron(nominal) and minium 10 micron (nominal) SMP or super polyester paint over primer coat of minium 5 micron (nominal) on other face. SMP and polyester paint system sahl be of idtrial finish of product type 4 of AS/NZ2728, including fixing of sheet to top flange of beam with drawn arc welding of headed shear anchor studs @ 260mm c/c in the trough and stich screws between two adjacent sheets and sealing with epoxy sealant.The shear anchor studs shall confirm to type B studs specified in AWS D1.1/D1.1M or equivalent as shear connector of 16 mm dia & 65 mm length manufactured from cold drawn round steel bars confirming to ASTM A 29 of grade designation 1010 through 1020 of standard quality with either semi killed or killed welded by drawn arc stud welding through metal deck sheet (shear anchor studs shall be paid separately under relevant item) Payment Terms: a) On receipt of material site - 60% b) On complete execution as per item description - 40%					
a	Span Upto 1800mm	SQM	25583			1.4054903050
b	Span Exceeding 1800mm and upto 2500 mm	SQM	9762			0.5711910198
B1501	Designing, providing and fixing permanently color coated galvanised MS troughed metal sheet decking plate of approved colour over roof purlins for cast-in-situ roof slab as per relevant IS code and Grade as per specification. Bare metal thickness(BMT) of deck plate shall be minimum 0.6mm with minimum trough depth of 44mm of grade G350 as per AS1397 / grade SS340 class 4 as per ASTM A792M / grade S350GD as per EN 10326 with zinc coating to class Z275 and shall serve as permanent shuttering to the roof slab minimum 40mm thick measured over crest of metal decking & shall have adequate strength to support weight of green concrete and imposed loads of min 100 kg/sqm (for two span condition) during construction between beams as per manufacturer's recommendations/ calculations/ test certificates for approval including fixing of plates to beams, side lapping, end lapping etc. all complete for below mentioned spans. The sheet shall be permanently coated with silicon modified polyester(SMP silicon content 30%-50%) paint or super polyester paint of minimum 20 micron DFT on exposed surface (facing operating floor) over primer coat of minimum 5 micron(nominal) and minium 10 micron (nominal) SMP or super polyester paint over primer coat of minium 5 micron (nominal) on other face. SMP and polyester paint system sahl be of idtrial finish of product type 4 of AS/NZ2728, including fixing of sheet to top flange of beam with drawn arc welding of headed shear anchor studs @ 260mm c/c in the trough and stich screws between two adjacent sheets and sealing with epoxy sealant.The shear anchor studs shall confirm to type B studs specified in AWS D1.1/D1.1M or equivalent as shear connector of 16 mm dia & 65 mm length manufactured from cold drawn round steel bars confirming to ASTM A 29 of grade designation 1010 through 1020 of standard quality with either semi killed or killed welded by drawn arc stud welding through metal deck sheet (shear anchor studs shall be paid separately under relevant item) Payment Terms: a) On receipt of material site - 60% b) On complete execution as per item description - 40%					
a	Span Upto 1800mm	SQM	1588			0.0969358387
b	Span Exceeding 1800mm and upto 2500 mm	SQM	542			0.0352370339
C1501	Designing, providing and fixing permanently color coated galvanised MS troughed metal sheet decking plate of approved colour over roof purlins for cast-in-situ roof slab as per relevant IS code and Grade as per specification. Bare metal thickness(BMT) of deck plate shall be minimum 0.6mm with minimum trough depth of 44mm of grade G550 as per AS1397 /grade SS550 as per ASTM A792M / grade SS50GD as per EN 10326 with zinc coating to class Z275, and shall serve as permanent shuttering to the roof slab minimum 40mm thick measured over crest of metal decking & shall have adequate strength to support weight of green concrete and imposed loads of min 100 kg/sqm (for two span condition) during construction between beams as per manufacturer's recommendations/ calculations/ test certificates for approval including fixing of plates to beams, side lapping, end lapping etc. all complete for below mentioned spans. The sheet shall be permanently coated with silicon modified polyester(SMP silicon content 30%-50%) paint or super polyester paint of minimum 20 micron DFT on exposed surface (facing operating floor) over primer coat of minimum 5 micron(nominal) and minium 10 micron (nominal) SMP or super polyester paint over primer coat of minium 5 micron (nominal) on other face. SMP and polyester paint system sahl be of idtrial finish of product type 4 of AS/NZ2728, including fixing of sheet to top flange of beam with drawn arc welding of headed shear anchor studs @ 260mm c/c in the trough and stich screws between two adjacent sheets and sealing with epoxy sealant. The shear anchor studs shall confirm to type B studs specified in AWS D1.1/D1.1M or equivalent as shear connector of 16 mm dia & 65 mm length manufactured from cold drawn round steel bars confirming to ASTM A 29 of grade designation 1010 through 1020 of standard quality with either semi killed or killed welded by drawn arc stud welding through metal deck sheet (shear anchor studs shall be paid separately under relevant item) Payment Terms: a) On receipt of material site - 60% b) On complete execution as per item description - 40%					
a	Span Upto 1800mm	SQM	1588			0.0785180293
b	Span Exceeding 1800mm and upto 2500 mm	SQM	542			0.0285419975

PART-B						
PROJECT: 1X800 MW NTPC SIPAT TPS, CHATTISGARH, INDIA						
BOQ CUM RATE SCHEDULE (PRICE BID)						
ST NO	ITEM DESCRIPTION	UOM	TOTAL QTY	RATES = TOTAL QUOTED PRICE * WEIGHTAGE / (QUANTITY * 100)	AMOUNT (INR) = RATE * QUANTITY	WEIGHTAGE IN % (UPTO 10 DECIMAL POINT)
A1503	Providing and fixing shear anchor studs for fixing metal deck sheet to floor structural beams conforming to Type-B studs specified in AWS D1.1/D1.1M or equivalent as shear connector of 19mm diameter and 100mm length manufactured from cold drawn round steel bars conforming to the requirement of ASTM A 29, of grade designation 1010 through 1020, of standard quality with either semi-killed or killed, welded by Drawn Arc Stud Welding through metal deck sheet etc all complete as per specification. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	QUINTAL	102			0.0945674270
B1503	Providing and fixing shear anchor studs for fixing metal deck sheet to roof structural purlins conforming to Type-B studs specified in AWS D1.1/D1.1M or equivalent as shear connector of 16mm diameter and 65mm length manufactured from cold drawn round steel bars conforming to the requirement of ASTM A 29, of grade designation 1010 through 1020, of standard quality with either semi-killed or killed, welded by Drawn Arc Stud Welding through metal deck sheet etc all complete as per specification. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	QUINTAL	26			0.0241054226
1504	Designing, providing and fixing External sheet of Permanent colour coated metal cladding with troughed M.S. sheets of 0.6mm bare metal thickness having minimum yield strength 250 MPa and zinc-aluminium alloy coating not less than 275 gm/sqm total on both sides including fixing to supports / rails by concealed fixing system, corrosion resistant self tapping / self drilling type fasteners with suitable cap, flashing etc. all complete. The exposed face of the sheet shall be permanently colour coated with Polyfluro Vinyl Coating (PVF2) of minimum dry film thickness (DFT) 20 microns over suitable primer. Inner face of the sheet shall be provided with suitable pre-coating of minimum DFT 7 microns over suitable primer. The permanent colour coated sheet shall meet the general requirements of IS : 14246 and shall conform to class 3 for the durability. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	SQM	350			0.0168755061
A1505	Designing, providing and fixing External/ Inner sheet of Permanent colour coated metal cladding / roofing with troughed M.S. sheets of minimum 0.5 mm bare metal thickness of min. grade G350 as per AS1397/grade S340 class 4 or as per ASTM A792M/ grade S350 GD as per EN 10326 with zinc coating to class Z275 / aluminium zinc alloy coating to class AZ150 on both sides including fixing to supports / rails by concealed fixing system, corrosion resistant self tapping / self drilling type fasteners with suitable cap, flashing, etc. all complete over columns, beams, bracings etc. at all levels. The exposed face the sheet shall be permanently coated with silicon modified polyester(SMP silicon content 30%-50%) paint or super polyester paint of minimum 20 micron DFT on exposed surface over primer coat of minimum 5 micron and minum 10 micron SMP or super polyester paint over primer coat of minimum 5 micron on other face. SMP and polyester paint system shall be of industrial finish of product type 4 of AS/NZ2728. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	SQM	10820			0.5960449353
B1505	Designing, providing and fixing External/ Inner sheet of Permanent colour coated metal cladding / roofing with troughed M.S. sheets of minimum 0.6mm bare metal thickness of min. grade Y250 as per IS 15961 / grade G250 as per AS1397 / grade S255 as per ASTM A653M / grade S250GD as per EN 10326 with zinc coating to class Z275 / aluminium-zinc alloy coating to class AZ150 on both sides including fixing to supports / rails by concealed fixing system, corrosion resistant self tapping / self drilling type fasteners with suitable cap, flashing, etc. all complete over columns, beams, bracings etc. at all levels. The exposed face the sheet shall be permanently coated with silicon modified polyester(SMP silicon content 30%-50%) paint or super polyester paint of minimum 20 micron DFT on exposed surface over primer coat of minimum 5 micron and minum 10 micron SMP or super polyester paint over primer coat of minimum 5 micron on other face. SMP and polyester paint system shall be of industrial finish of product type 4 of AS/NZ2728. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	SQM	10820			0.6177192966
C1505	Designing, providing and fixing External/ Inner sheet of Permanent colour coated metal cladding / roofing with troughed M.S. sheets of minimum 0.4mm BMT of minimum grade Y550 as per IS 15961/grade G550 as per AS1397 / grade S550 as per ASTM A792M / grade S550GD as per EN 10326 with zinc coating to class Z275 / aluminium-zinc alloy coating to class AZ150 on both sides including fixing to supports / rails by concealed fixing system, corrosion resistant self tapping / self drilling type fasteners with suitable cap, flashing, etc. all complete over columns, beams, bracings etc. at all levels. The exposed face the sheet shall be permanently coated with silicon modified polyester(SMP silicon content 30%-50%) paint or super polyester paint of minimum 20 micron DFT on exposed surface over primer coat of minimum 5 micron and minum 10 micron SMP or super polyester paint over primer coat of minimum 5 micron on other face. SMP and polyester paint system shall be of industrial finish of product type 4 of AS/NZ2728. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	SQM	9274			0.4551608403
1511	Providing and fixing insulation of resin bonded mineral wool of 50 mm nominal thickness conforming to IS 8183 having a density of 32 kg/cum glass wool or 48 kg/cum for rock wool, for cladding/under deck insulation including application of glue and tying with lacing wire, for glass/rock wool as per manufacturer's recommendations. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%					
a	For insulation in Sandwich Cladding	SQM	10			0.0002214182
b	For underdeck insulation below RCC slabs	SQM	10			0.0002588303
1512	Providing and fixing insulation of resin bonded mineral wool of 50 mm nominal thickness conforming to IS 8183 having a density of 32 kg/cum glass wool or 48 kg/cum for rock wool, for cladding/under deck insulation including wrapping in black polythene black supported over weld mesh 75X75X1.6 MM dia to hold in position and application of glue & tying with lacing wire, for glass/rock wool as per manufacturer's recommendation. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%					
b	For underdeck insulation below RCC slabs	SQM	2000			0.0600883306

PART-B						
PROJECT: 1X800 MW NTPC SIPAT TPS, CHATTISGARH, INDIA						
BOQ CUM RATE SCHEDULE (PRICE BID)						
ST NO	ITEM DESCRIPTION	UOM	TOTAL QTY	RATES = TOTAL QUOTED PRICE * WEIGHTAGE / (QUANTITY * 100)	AMOUNT (INR) = RATE * QUANTITY	WEIGHTAGE IN % (UPTO 10 DECIMAL POINT)
A1519	Designing, providing and fixing Factory made (Continous Line) prefabricated sandwiched Permanent colour coated metal cladding comprising top sheet as troughed(minimum depth of trough shall be 30 mm) permanently colour coated sheet & bottom sheet as plain permanently colour coated for covering of exposed metal/concrete / brick surfaces with insulation shall be of Polyurethane type of minimum 50mm thick (excluding trough). The polyurethane shall be Chlorofluorocarbon (CFC) free and self-extinguishing and shall conform to IS 12436: 1988. It shall have Modular Density 40 +/- 2 Kg/m3 and Thermal Conductivity @ 10 Deg.C 0.017 - 0.020 W/M 0k, Water absorption (% by vol) 3.1, Critical Oxygen Index 23 and Compressive Strength 1.2 Kg/sq.cm, sandwiched between the two sheets, each sheet shall be high strength tensile steel sheet 0.5mm bare metal thickness (minimum) of YS350 as per IS 15961 /grade G350 as per ASI397 / grade SS340 class 4 as per ASTM A792M / grade S350GD as per EN 10326 with zinc coating to class Z 275 / aluminium-zinc alloy coating to class AZ150 on both sides, both sheet shall be permanently coated with silicon modified polyester (SMP with silicon content of 30% to 50%) paint of minimum 20 micron DFT on exposed surface on 5 microns (min.) epoxy primer/phosphate primer coat and 10 micron (min.) SMP on 5 micron (min.) epoxy primer/phosphate primer on other face, SMP paint system shall be of industrial finish of product type 4 of AS/NZS 2728,roughed sheet shall be of approved profile, sectional properties, (suitable for the specified loading / deflection and purlins / runner spacing), colour and shade, at all levels, including all labour, materials, equipment, handling, transportation, special coated fastener conforming to corrosion resistant Class 3 of AS3566 and tested for 1000 hours salt spray test, fixing insulated sandwiched metal sheet with the structural members below for supporting the sheeting system, scaffolding, equipment, end and side laps, cutting of openings, preparation of working drawings, testing, etc., all complete, as per specifications. Sealant used for cladding shall be butyl based, two parts poly sulphide or equivalent approved, non stainless material and be flexible enough not to interface with fit of the sheets. Coated surface shall be provided with a protected guard film (polyethylene) of about 40 microns to avoid any damage to the coating during handling. Overlap shall be min. 100 mm or as specified by manufacturer. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	SQM	3225			0.2987044740
1600	FALSE CEILING: False ceiling including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, suspension system etc at all level as per specification, drawings and as directed by engineer - in - charge.					
A1601	Providing and fixing 12.5 mm thick tapered/square edge glass fibre reinforced gypsum board false ceiling conforming to IS : 2095 having fine texture finish, including providing and fixing of frame work at all levels, for all kind of work, consisting of light weight galvanised steel member (minimum 0.8 mm thick and galvanised as per IS: 2777) having maximum grid size of 1200 mm x 600 mm for supporting panels of specified size, suspended from RCC structural steel or catwalkway grid above, with 4 mm (minimum) galvanised wires (rods), with special height adjustment clips, providing angle section of minimum 25 mm width along the perimeter of ceiling, supporting grid system (minimum 0.8 mm thick and galvanised as per IS: 277 ), expansion fasteners for suspension arrangement from RCC, providing openings for AC ducts, return air grills, light fixtures, etc., all complete, (but excluding the cost of catwalkway grid) all complete as per drawings, specification and instructions of the engineer in charge. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	SQM	333			0.0174346566
1602	Providing, fixing and laying light weight mineral fiber tile false ceiling of minimum thickness 15 mm and exposed surface semi-perforated with depth of perforation as 4 mm and humid resistance of 95% RH and fire performance of class 0/1 as per BS 476 with metal suspension grid system with galvanized Tees (silhouette T -profile) of section 24 X 38 mm for main runners of approved colour and make as per specification including 50mm thick mineral wool insulation (density48kg/cum) as per IS:8183 bound in polythene bags on top of panels. Additional hangers and height adjustment clips shall be provided for return air grills, light fixtures. A.C. ducts etc. suitable M.S. channel (minimum MC 75 @ 1.2m) grid shall also be provided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. complete with cut-outs etc.The size of tiles shall be 600 X 600 mm or 600 X 1200 mm. Required MS channel shall be measured & paid extra under respective item unit rate. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	SQM	20			0.0009414093
A1602	Providing, fixing and laying light weight mineral fiber tile false ceiling of minimum thickness 15 mm and exposed surface semi-perforated with depth of perforation as 4 mm and humid resistance of 95% RH and fire performance of class 0/1 as per BS 476 with metal suspension grid system with galvanized Tees (silhouette T -profile) of section 24 X 38 mm for main runners of approved colour and make as per specification including 50mm thick mineral wool insulation (density48kg/cum) as per IS:8183 bound in polythene bags on top of panels. Additional hangers and height adjustment clips shall be provided for return air grills, light fixtures. A.C. ducts etc. suitable M.S. channel (minimum MC 75 @ 1.2m) grid shall also be provided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. complete with cut-outs etc.The size of tiles shall be 600 X 600 mm or 600 X 1200 mm. Required MS channel shall be measured & paid extra under respective item unit rate.(All mineral fiber board to be used should be with appropriate % of recycled content. The contractor to provide the material cutsheet/ declaration from manufacturer mentioning the recycled content used in manufacturing of board to be used) Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	SQM	2426			0.1238340553
A1603	Providing and fixing permanently colour coated aluminium false ceiling of approved colour of Luxalon Hunter douglas, or approved equivalent with corrosion resistant aluminium alloy panels of size 600 mm x 600 mm and 0.6 mm thk. with clip on torsion spring system. perforation patterns in combination with built in nonwoven tissue, acoustic fleece for providing good acoustic properties and installed with silhouette T-Grid (of profile 24 mm) in same or contrasting colours or with 6 mm recess joints. The whole system shall be level adjusting arrangement and shall be suspended as per manufacturer. Additional hangers and height adjustment clips shall be provided for return air grills, light fixtures, A.C. ducts etc. all complete. Suitable M.S. channel grid with minimum MC 75 at minimum grid distance 1.2m c/c shall also be provided above the false ceiling level for movement of personnel to facilitate maintenance of lighting fixtures, AC ducts etc. ( Materials for structural platform grid made up of MS Channels/ Beams / Angles shall be paid separately.) Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	SQM	2430			0.2802279361
B1603	Providing and fixing batten ceiling of extruded aluminum / metal of minimum 0.6mm thickness with powder coated finish (min. 40 microns) /wooden finish (minimum 0.11mm) of approved make with Greenguard, tested/certified from UL/Intertek and having superior acoustics & highest health and safety standards. The battens shall have possibility of curvilinear arrangement. Batten ceiling of 1"x1" made up of extruded aluminum with "click-on system" and meet technical requirements of ASTM E84. The ceiling shall be installed using ceiling aluminum suspension system, complete as per manufacturer's installation guidelines, specification drawings and as per direction of Engineer-in-charge. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	SQM	100			0.0103783854

PROJECT: 1X800 MW NTPC SIPAT TPS, CHATTISGARH, INDIA							PART-B
BOQ CUM RATE SCHEDULE (PRICE BID)							
ST NO	ITEM DESCRIPTION	UOM	TOTAL QTY	RATES = TOTAL QUOTED PRICE * WEIGHTAGE / (QUANTITY * 100)	AMOUNT (INR) = RATE * QUANTITY	WEIGHTAGE IN % (UPTO 10 DECIMAL POINT)	
B1607	Providing and Fixing 12 mm thk calcium silicate board of 'HILUX' or equivalent with suspension system as per manufacturers details including supporting grid system, expansion fasteners for suspension arrangement from RCC, providing openings for AC ducts, return air grills, light fixtures, etc., all complete. (With concealed grid and finished flat seamless). The work to be complete as per specifications, drawings and direction of engineer. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	SQM	1023			0.0866946901	
A1609	Providing , Design and fixing Aluminium ceiling trap door in the false ceiling matching with false ceiling material with min. 2mm thick powder coated inner and outer aluminum frame, corner fitting plate with stainless steel of 2mm thick fixture are with self-drilling screws and sealing strip of 6mm width and 6mm thick. Hinge operated through Push-lock mechanism. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	SQM	25			0.0042149922	
1700	RAIN WATER DOWN TAKE PIPES: Rain water down take pipes at all level including all labour, material (unless otherwise specified in BOQ/contract specification), transportation, 2 coats of approved paint over one primary coat, fixtures, accessories etc as per specification, drawings and as directed by engineer - in - charge.						
1704	Providing and fixing galvanised MS down take pipes of 150 mm dia- Medium quality as per IS:1239(part-I) all complete. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	RM	7512			0.4906716872	
1800	MISCELLANEOUS: Miscellaneous works including all labour, material (unless otherwise specified in BOQ/contract specification), equipment etc. at all level unless otherwise specified as per specification, drawings and as directed by engineer - in - charge.						
A1801	Providing and Filling in trenches, plinths, area paving, grade slab, other underground structures, etc. with 63 mm downgraded hard stone aggregate as per IRC specification watering and compaction to minimum of 90% Standard Proctor density, including filling the interstices of stone aggregates with sand) in layers not exceeding 200 mm in thickness all complete as per drawings/specifications. Payment shall be made for the measurement of the volume of the compacted fill.	CUM	20988			1.3292383166	
1802	Supply and laying approved quality Stone aggregate 40mm size in transformer yards.	CUM	880			0.1050835720	
1803	Supply and laying approved quality rounded pebbles / gravels of 40mm size in transformer yards.	CUM	250			0.0291279519	
1808	Laying of earthing mats/rods including risers, transportation from yard stores, loading, unloading, cutting to length, welding, protective painting of joints etc. all complete. (Excavation & Back filling shall be paid separately under respective item of earth work. Earthing mats/rods shall be supplied by BHEL free of cost)	MT	150			0.0713844786	
1809	Construction of below ground earthing system test pits as per drawing / sketches including concreting, reinforcement, formwork, providing & fixing GI strip etc as per drawing and specification (excavation & backfilling only will be paid under applicable BOQ items & cement/steel to be supplied by BHEL free of cost)	NO	100			0.0448791877	
1810	Construction of below ground earthing system test links as per drawing/ sketches including concreting, reinforcement, formwork, providing & fixing GI strip etc as per drawing & specification (excavation & backfilling only will be paid under applicable BOQ items & cement/steel to be supplied by BHEL free of cost)	NO	100			0.0350986094	
1811	Construction of below ground earthing system earth electrodes as per drawing and specification. (Excavation and backfilling only will be paid under applicable BOQ items & steel shall be supplied by BHEL free of cost.)	NO	100			0.0032563752	
1812	Construction of below ground earthing system - Earth connection and riser pig tails as per drawing and specification. (Excavation and backfilling only will be paid under applicable BOQ items& steel shall be supplied by BHEL free of cost.)	NO	100			0.0019125955	
1813	Providing Earthing pit as per drawing with charcoal & salt, GI pipes, GI earth electrodes, GI wire, GI strips, brick chamber with covers including associated earthwork etc. all complete.	NO	100			0.0984662205	
1814	Construction of below ground earthing system test pits as per drawing/ sketches including brickwork, plaster, providing & fixing GI strips/pipes, GI wires, covers etc as per drawing & specification including associated earthwork.	NO	100			0.0739613289	
1815	Providing and fixing GI rungs in concrete/brick walls having zinc coating of minimum 900 g/sqm etc. all complete.	Kg	640			0.0024188034	
B1825	Providing & Laying 400micron thick polythene sheet below the concrete base including materials, labour etc. complete as per drawing / direction of engineer.	SQM	250			0.0021340138	
1827	Anti weed chemical treatment of soil with suitable chemical pertaining to the types of weeds found in the vicinity including providing anti-weed/ soil sterilization test certificate, performance guarantee of three years etc. all complete.	SQM	9910			0.0018915990	
A1837	Providing 50mm thick premix carpet surfacing laid to slope in two layers 30mm and 20mm respectively with 12mm downgraded stone chips mixed with 80/100 grade bitumen @ 52 Kg/Cu.M or equivalent to 8% to 10% by volume including compaction. Separation layer of one tack coat @ 1Kg/sqm shall be spray after first layer of 30mm and sand shall be sprayed on the final surface of 20mm @ 0.5 cum/100 sqm. etc. all complete as per specification and as guided by engineer-in-charge.	SQM	583			0.0142027919	
A1838	Providing 50mm thick anti corrosive layer laid to required slope consisting of clean & well graded coarse sand mixed with A90 grade bitumen for softening point upto 45 degree Celcius or A65 grade bitumen for softening point above 45 degree celcius as per IS: 73 or its equivalent quality 8 to 10% by volume and rolled or compacted all complete.	SQM	583			0.0141096589	
A1841	Providing, laying and fixing rails and guide rails in concrete for transformer, rail track including cutting of rails, joining of rails, anchoring lugs etc all complete. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	MT	114			0.3737204791	
A1845	Providing and installation of Bio-Toilet near all the modular worker's sheds etc all complete as per specification.	LS	1			0.0018351377	
A1847	Providing & fixing 200 dia PVC pipe ISI mark 6 Kg/cm2 as per specification.	RM	500			0.0184029102	
A1849	Providing engineering consultancy services for Architectural design & drawings of CCR (Central control room in powerhouse building) in harmony with the overall plant and presented in the form of presentation drawings, including 3-D perspective rendered views, panoramic views, walkthrough, with color schemes, lighting design, as per specification including preparation of integrated services drawings in co-ordination with electrical, HVAC & fire systems etc. and taking approval on drawings from BHEL/customer (All complete).Perspective coloured views shall be submitted in Hard Copy in Laminated A-1 Size (Two Numbers) as required in the desired format. Structural design & drawing, of buildings & foundations are in scope of BHEL and not included in scope of bidder.The scope of bidder shall include coordination with respect to HVAC, electrical & fire fighting systems & space requirements for electrical facilities in consultation with BHEL/customer. Engineering services of acoustic design, interior architecture, PA system, planning for firefighting system as per inputs provided by BHEL, external & internal finishes, plumbing & sanitation, water supply system, false ceiling, internal partitions, reception, glazing,etc. are also included in this item. Any addition/changes in design as per customer requirement during detailed engineering stage, no extra payment is admissible. All design and drawings shall be submitted in soft and hard copies along with 3-D model.Bidder shall also provide BOQ & specification of finishing items in a generalized fashion in consultation with BHEL Civil design wing, during detailed engineering stage for further sub-contracting of finishing works.	LS	1			0.1150185329	
2000	FENCING AND GATES: Fencing and gates including all labour, material (unless otherwise specified in BOQ/contract specification), equipment etc at all level as per specification, drawings and as directed by engineer - in - charge.						

PART-B						
PROJECT: 1X800 MW NTPC SIPAT TPS, CHATTISGARH, INDIA						
BOQ CUM RATE SCHEDULE (PRICE BID)						
ST NO	ITEM DESCRIPTION	UOM	TOTAL QTY	RATES = TOTAL QUOTED PRICE * WEIGHTAGE / (QUANTITY * 100)	AMOUNT (INR) = RATE * QUANTITY	WEIGHTAGE IN % (UPTO 10 DECIMAL POINT)
A2003	Supplying and erecting in position 2.4 m high PVC coated G.I. welded wire mesh fencing of minimum 4 mm diameter (including PVC coating) of mesh size 75mmX75mm including providing concertina of 600 mm height over chain link fencing. The diameter of the steel wire for chain link fence (excluding PVC coating) shall not be less than 2.5 mm. The PVC coated chain link will be stretched by the clips at 0.5m intervals to three strands of galvanised high tensile spring steel wire (HTSSW) of 2.5 mm diameter interwoven with chain link wire mesh and kept under tension which in turn are attached to the fence post with security nuts and bolts. On every fourth post a clamping strip will be threaded through the links of chain link and bolted to the fence post with the help of security nuts and bolts. Concertina of height of 600 mm at top of chain link fencing shall be provided with all accessories. Concertina shall be of high tensile serrated galvanised wire (HTSW) with wire diameter of 2.5mm stretched to 6m and attached to two strands of galvanised HTSSW of 2.5 mm diameter by means of clips at 1m intervals. These two HTSSW strands will be attached to the fence posts with 12 mm security fasteners etc. all complete. (Structural post shall be separately under ST No. 2007) Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	RM	780			0.0777347768
2007	Supply and fixing of hot dip galvanised mild steel posts for fencing. Rate of zinc coating shall not be less than 710 g/m2 on steel posts. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	MT	10			0.0420381626
2009	Supply, fabrication and installing in position and testing galvanised MS Gates out of channels, joists, angles, flats, plates, pipes, welded steel wire mesh & sheets including stiffeners, bracings, fabricated hinges, MS Aldrops with locking arrangement, tempered steel pivot, guide track of MS Tee, bronze aluminium ball bearing arrangements, castor wheels, paintings etc. all complete. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	MT	22			0.1004366138
2100	WATER SUPPLY: Water supply work including men, material (unless otherwise specified in BOQ/contract specification), equipment etc. at all level as per specification, drawings and as directed by engineer - in - charge.					
2101	Providing and fixing in position tested heavy duty type chromium plated (CP) brass long neck/body bib cocks including sockets, union, nuts etc all complete - 15mm nominal bore.	NOS	100			0.0053178554
2102	Providing and fixing in position heavy duty brass stop cock of approved quality including all specials etc all complete - 15mm nominal bore.	NOS	100			0.0022409053
2103	Providing and fixing in position heavy duty brass full way valve with wheel of approved quality including all specials etc all complete for following sizes:					
a	25mm nominal bore.	NOS	50			0.0017579845
b	50mm nominal bore.	NOS	50			0.0040370654
A2104	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, confirming to IS 15778, having thermal stability for hot & cold water supply including all CPVC plain & brass threaded fittings, all pipes shall be concealed and painted with anticorrosive paint, complete for internal works with GI sockets, unions, elbows, tees, nipples etc and clamps including cutting and making good the walls etc all complete for following sizes:					
a	15 mm nominal bore.	RM	500			0.0108483487
b	20 mm nominal bore.	RM	1000			0.0252699298
c	25 mm nominal bore.	RM	1000			0.0278853374
d	50 mm nominal bore.	RM	500			0.0186208926
A2105	Providing and fixing UPVC pipes conforming to IS:13592 complete for external work with GI sockets, unions, elbows, tees, nipples etc including trenching & refilling, anti-corrosive paint etc all complete for following sizes:					
a	15 mm nominal bore.	RM	500			0.0012903339
b	20 mm nominal bore.	RM	500			0.0017140826
c	25 mm nominal bore.	RM	1250			0.0053445783
d	50 mm nominal bore.	RM	1250			0.0106414372
e	75 mm nominal bore.	RM	500			0.0063753184
f	100 mm nominal bore.	RM	250			0.0042470310
A2106	Providing and fixing 900mmx600mmx6mm thk mirror edge mounted with teak beading and minimum 12 mm thick plywood backing or mounted with SS Studs from reputed mirror manufacturer. Mirror shall be mounted with glass adjustable revolving CP brackets with CP screws etc all complete.	NOS	50			0.0031542216
A2108	Providing and fixing 20 mm diameter stainless steel towel rails (600mm X 20mm) with C.P. mounting brackets all complete.	NOS	50			0.0021213395
2111	Providing and fixing stainless steel / C.P. liquid soap dispenser. Dispenser shall be round and easily revolving with removable threaded nozzle and mounted on C.P. brackets etc all complete.	NOS	100			0.0023401618
2113	Providing and fixing chromium plated brass shower rose 100mm dia with 15 or 20 mm inlet dia shower arm all complete.	NOS	100			0.0028249914
2114	Providing & fixing in position P.V.C. water tank of Syntex or approved equivalent including making all necessary inlet & outlet pipes, fixture, ball cocks, valves etc all complete for following capacities.					
a	500 litres capacity	NOS	10			0.0021099632
b	1000 litres capacity	NOS	5			0.0021099632
c	2000 litres capacity	NOS	2			0.0016879705
d	5000 litres capacity	NOS	3			0.0063297750
A2115	Providing and fixing glass shelves 600mmx127mmx4 mm with chromium plated brackets all complete.	EACH	100			0.0022979014
A2116	Providing and fixing metal storing cabinets all complete.	EACH	50			0.0247017057
A2117	Providing and fixing electric operated hand dryer with photo voltaic control etc all complete.	EACH	50			0.0082344682
A2118	Providing and fixing Recessed porcelain soap tray in shower area etc all complete.	EACH	100			0.0019087780
A2119	Providing and fixing grab bars, barrier-free access and appropriate fittings and fixtures for toilets for handicapped etc. all complete.	EACH	10			0.0006587116
2200	SANITARY: Sanitary work including all labour, material (unless otherwise specified in BOQ/contract specification), equipment etc. at all level as per specification, drawings and as directed by engineer - in - charge.					
A2201	Supply and fixing glazed vitreous china Wash Basin 550 mm x 450 mm mounted over granite beveled edge counter fitted with photovoltaic control system for water controls, bottle trap with two taps and all requisite items of approved make conforming to IS:2556 part 4 of oval shape with R.S. or C.I. brackets painted white, 15mm chromium plated brass hot & cold faucets with nylon washers, chromium plated brass chain with rubber plug, 32mm chromium plated brass bottle trap and waste of standard pattern, 32mm dia chromium plated brass trap unions, plastic connection pipe with chromium plated nuts, fittings, cutting and making good the walls where required etc all complete.					
b	Colored	EACH	50			0.0250469846
A2202	Providing and fixing approved vitreous china laboratory basin/sink of size 600x400x200mm conforming to IS:2556 (part-5) with R.S. or C.I. brackets, chromium plated brass chain with rubber plug 32mm, 32mm CP brass waste coupling and 32mm CP brass bottle trap with necessary union complete including painting the fittings, cutting and making good the wall where required etc. all complete.	EACH	5			0.0013624857

PART-B						
PROJECT: 1X800 MW NTPC SIPAT TPS, CHATTISGARH, INDIA						
BOQ CUM RATE SCHEDULE (PRICE BID)						
ST NO	ITEM DESCRIPTION	UOM	TOTAL QTY	RATES = TOTAL QUOTED PRICE * WEIGHTAGE / (QUANTITY * 100)	AMOUNT (INR) = RATE * QUANTITY	WEIGHTAGE IN % (UPTO 10 DECIMAL POINT)
A2203	Providing and fixing stainless steel kitchen sink of size 610x510x200mm with drain board of atleast 450 mm length with trap conforming to IS: 13983 including all fittings etc. all complete as per specification.	EACH	5			0.0016829695
2204	Providing and fixing colour glazed vitreous china European type water closet conforming to IS:2556 with siphon, open front solid plastic seat and plastic cover, low level 12.5 litre PVC flushing cistern (same colour as WC) with valveless fittings, 2 way bibcock with health faucet necessary C.P connections etc all complete as per specification, drawings and as per direction of Engineer-in-charge.					
b	Wall mounted	EACH	50			0.0205499037
2205	Providing and fixing colour glazed vitreous indian type Orissa pattern (580x440mm) water closet conforming to IS:2556 part 3 with all fittings including foot rests, low level 12.5 litre PVC flushing cistern with valveless fittings, 2 way bibcock with health faucet necessary C.P connections etc all complete.	EACH	50			0.0131877470
2206	Providing and fixing white flat back glazed vitreous china urinals of size 370x315x620 mm with photo voltaic control flushing system as per IS:2556 (part 6, section 1) with flush pipes, lead pipes, gratings, traps and necessary C.P. fittings etc. all complete.	EACH	50			0.0354135577
2207	Supply, laying and jointing UPVC pipes of class 3 as per IS:4985 including bends, branches and all other necessary fittings, M.S holder bats/clamps, cutting and making good the walls and floors, jointing, testing etc all complete for following. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%					
a	75mm dia pipes	RM	1000			0.0127506369
b	110mm dia pipes	RM	1000			0.0169881240
c	160mm dia pipes	RM	250			0.0065471084
d	200mm dia pipes	RM	250			0.0079977797
2208	Providing, laying light duty non pressure NP3 class RCC pipes with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc all complete for following. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%					
a	200mm dia	RM	1835			0.0521888529
b	300mm dia	RM	1243			0.0608337465
c	450mm dia	RM	632			0.0509561259
d	600mm dia	RM	25			0.0027266893
e	900mm dia	RM	12			0.0022909917
2209	Providing, laying light duty non pressure NP2 class RCC pipes with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc complete for following. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%					
a	150mm dia	RM	12			0.0002336344
b	250mm dia	RM	12			0.0003087639
c	300mm dia	RM	12			0.0003756475
d	450mm dia	RM	12			0.0005524767
e	500mm dia	RM	12			0.0006440980
2210	Providing, laying light duty non pressure NP4 class RCC pipes with collars jointed with stiff mixture of cement mortar 1:2 including testing of joints etc complete for following: Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%					
Aa	250mm dia	RM	12			0.0006427237
Ba	300mm dia	RM	12			0.0007572504
a	450mm dia	RM	12			0.0011008304
b	600mm dia	RM	12			0.0014444105
c	900mm dia	RM	12			0.0026583933
2211	Providing and fixing C.I Manhole heavy duty cover of size 600mmx450mm including frame from reputed manufacture etc. all complete.	EACH	25			0.0127153245
2212	Providing and fixing circular heavy duty C.I. manhole cover of 600 mm dia with frame etc. all complete.	EACH	25			0.0129023847
2213	Providing and fixing square mouth S.W Gully trap grade 'A' complete with CI grating, brick masonry chamber(Clay Brickwork in 1:6 mortar, 12mm plaster in 1:6 mortar & 1:2:4 Cement Concrete) and water tight CI cover with 300x300mm (inside). The weight of cover to be not less than 4.53 Kg and frame to be not less than 2.72 Kg etc all complete for following sizes:					
a	100x100mm P or S Type.	EACH	50			0.0049895456
b	150x100mm P or S Type.	EACH	25			0.0025701695
c	150x150mm P or S Type.	EACH	25			0.0026350680
2214	Providing and fixing C.I. floor traps size 100 mm Inlet and 100 mm Outlet Sand Cast Iron S&S as per IS: 1729 with C.P jalli all complete.	EACH	200			0.0149571842
2215	Providing and fixing 100mm heavy duty UPVC floor traps with 100 mm inlet and 100 mm outlet & C.P jalli all complete.	EACH	50			0.0036285869
2216	Providing and installing approved brand single tap water cooler of 80 L cooling capacity all complete.	EACH	3			0.0066544581
2217	Providing and installing approved brand single tap water cooler of 150 L cooling capacity all complete.	EACH	5			0.0198810678
2218	Providing and fixing white vitreous urinal partitions of size 675x325x85mm all complete.	EACH	35			0.0041059723
2219	Providing and fixing eye and face drinking water fountain (combined unit with receptacle conforming to IS: 10592) all complete as per specification.	EACH	5			0.0017957783
2220	Providing and fixing heavy duty cast iron pipes for above and below ground sanitary works with water tight lead joint, fixing clamps, excavation, filling, disposal etc. all complete for the following. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%					

PART-B						
PROJECT: 1X800 MW NTPC SIPAT TPS, CHATTISGARH, INDIA						
BOQ CUM RATE SCHEDULE (PRICE BID)						
ST NO	ITEM DESCRIPTION	UOM	TOTAL QTY	RATES = TOTAL QUOTED PRICE * WEIGHTAGE / (QUANTITY * 100)	AMOUNT (INR) = RATE * QUANTITY	WEIGHTAGE IN % (UPTO 10 DECIMAL POINT)
a	75mm dia pipes	RM	50			0.0027333701
b	100mm dia pipes	RM	75			0.0053054484
c	150mm dia	RM	75			0.0075444449
d	200mm dia pipes	RM	25			0.0035646429
e	250mm dia pipes	RM	25			0.0050773494
2221	Providing, laying spun CI pipes with conforming to IS 1536 complete for following. (Excavation, backfilling, concrete to be paid seperately) Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%					
a	75mm dia	RM	75			0.0046469200
b	100mm dia	RM	125			0.0103360327
c	150mm dia	RM	125			0.0151509252
d	200mm dia	RM	50			0.0088280981
e	250mm dia	RM	50			0.0112045267
f	300mm dia	RM	50			0.0137107522
2223	Providing and fixing vertical wall mounted water geysers/heaters(minimum 5 star rating) of required capacity including all connections & fittings(angular stop cock and brass connection pipes, etc.) all complete as per specification.					
a	15 Litres	Each	25			0.0110441893
b	25 Litres	Each	25			0.0119737642
2300	STRUCTURAL WORKS: Structural steel works including all labour, material (unless otherwise specified in BOQ/contract specification), equipments unless otherwise specified, transportation, handling etc. at all level as per specification, drawings and as directed by engineer - in - charge.					
AA2301	Taking delivery of steel from BHEL stores / store yard, loading, transportation, unloading, pre-assembly and erection of shop fabricated Medium and High Tensile structural steel (Grade designation E350/E410 conforming to IS 2062) with rolled section / built up section / combination of both conforming to IS:2062, chequered plate conforming to IS: 3052, etc. in columns, beams, gantry girders, roof trusses, portals, laced purlins, struts, monorails, galleries, stiffeners, wall beams, sheeting runners, brackets, stub columns, bracings, cleats, trestles, base plates, splice plates, chequered plate flooring, ladders, stairs, stringers, toe-guard/kick plate, etc., alignment, erection bolts & nuts (weight of erection bolts shall be paid seperately), assembly, edge preparation, erection scheme, protection against damage in transit, stability of structures, installation of temporary structures, setting column bases, rectification (if any), dismantling and removal of all temporary structures (weight of temporary structures not payable) including welding electrodes and other consumables, etc. The work shall be satisfactorily completed with required tightening of HSFG bolts along with DTI (DIRECT TENSION INDICATOR). (Shop fabricated steel shall be issued by BHEL free of cost) Payment Terms: 1. On completion of erection - 60% 2. On completion of alignment, welding, etc. complete as per description/specification - 40%	MT	16206			10.2730610919
B2301	Fabrication (Site Welded as per specification), transportation from fabrication yard and erection of Medium and High Tensile structural steel (Grade designation E250 conforming to IS 2062) with rolled section / built up section / combination of both conforming to IS:2062, pipes conforming to IS:1161/ IS:1239, chequered plate conforming to IS: 3052, mild steel rounds, monorails, stays, safety chains, ladders, etc. in columns, beams, gantry girders, bunkers, silos, hoppers, roof trusses, portals, laced purlins, space frames, hangers, struts, monorails, galleries, stiffeners, wall beams, sheeting runners, brackets, stub columns, bracings, cleats, trestles, base plates, splice plates, chequered plate flooring, decking and seal plates, steel frame grid over false ceiling, walkway platforms, ladders, stairs, stringers, treads, landings, hand-rails etc. including connection design & preparation of fabrication drgs (Using 3D model software like Tekla or equivalent), collection of steel from stores, straightening, cutting, bending, rolling, grinding, machining, drilling, welding with electrodes and other consumables, erection, alignment, erection bolts & nuts (weight of erection bolts, nuts and welds not payable), assembly, edge preparation, preheating (min preheat and interpass temperature of 20o C for welding over 20 mm and upto 40 mm & 66o C for welding over 40 mm and upto 63 mm & 110o C for thickness over 63 mm & use of low hydrogen/ radiogenic electrodes), post heating, testing of welders, inspection of welds, visual inspection, non destructive and special testing, rectification and correction of defective welding works, production test plate, inspection and testing, erection scheme, protection against damage in transit, stability of structures, installation of temporary structures, setting column bases, dismantling and removal of all temporary structures (weight of temporary structures not payable), return of surplus / waste steel materials to store etc all complete. Including appointment of a seperate agency, approved by BHEL, for review and approval of fabrication drgs, in consultation with BHEL. (Structure steel shall be issued by BHEL free of cost) Payment Terms: 1. On completion of fabrication - 50% 2. On completion of erection - 30% 3. On completion of alignment, welding, etc. complete as per description/specification - 20%	MT	5294			6.2867686145
A2302	Extra over ST NO. B2301 for blast cleaning of steel structures to near white metal surface (Sa 2 1/2 ) conforming to IS:1477 (Part I & II, latest revision) all complete as per specification.	MT	5294			0.9850422807
A2303	Extra over ST NO. ST NO. B2301 for providing and application of one coat of primer consisting of inorganic zinc (ethyl) silicate primer coat (having minimum 80% of metallic Zinc content in dry film, solid by volume minimum 60% ±2%) minimum 70 micron total dry film thickness (DFT) including touch up painting etc. all complete. (The primer coat shall be applied immediately after blast cleaning by airless spray technique. Zinc dust composition and properties shall be Type-II as per ASTM D520-00).	MT	5294			0.6192387255
A2305	Providing and applying intermediate coat of two component polyamide cured epoxy with MIO Content (containing lamellar MIO minimum 30% on pigment, solid by volume minimum 80% ±2%) of minimum 100 micron DFT on steel surfaces already having primer coats, of approved make and shade to achieve an even shade including protection and cleaning, scaffolding etc. all complete.	MT	5294			0.5310067432
B2305	Providing and applying Top coat of two pack aliphatic Isocyanate cured acrylic finish paint (solid by volume minimum 55% ±2%) with Gloss retention (SSPC Paint Spec No 36, ASTM D 4587, D 2244, D 523) of Level (after minimum 1000 hours exposure, Gloss loss less than 30 and colour change less than 2.0 ΔE) and minimum 70 micron DFT on steel surfaces already having primer coats of approved make and shade to achieve an even shade including protection and cleaning, scaffolding etc. all complete.	MT	5294			0.4697523561
2307	Supplying, fabrication, erection and alignment of factory made electroforged galvanised grating units with mild steel having minimum galvanisation conforming to IS:2062 in flooring, platforms, drain and trench covers, walk-ways, passages, staircases with edge binding strips and anti-skid nosing in treads etc. including fixing clamps, fittings, fixtures, all taxes, duties, packing, grinding, drilling, welding, edge preparation, etc. all complete. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%					
a	Minimum galvanisation of 610 g/sqm	MT	345			1.7033759019

PART-B						
PROJECT: 1X800 MW NTPC SIPAT TPS, CHATTISGARH, INDIA						
BOQ CUM RATE SCHEDULE (PRICE BID)						
ST NO	ITEM DESCRIPTION	UOM	TOTAL QTY	RATES = TOTAL QUOTED PRICE * WEIGHTAGE / (QUANTITY * 100)	AMOUNT (INR) = RATE * QUANTITY	WEIGHTAGE IN % (UPTO 10 DECIMAL POINT)
A2307	Supplying, fabrication, erection and alignment of factory made Heavy Duty electroforged galvanised grating units with mild steel having minimum hot dipped galvanisation conforming to IS:2062, finish blast cleaned to Sa 2 ½ finish or cleaned by acid pickling as per ISO 8501-1, in flooring, platforms, drain and trench covers, walk-ways, passages, staircases with edge binding strips and anti-skid nosing in treads etc. including fixing clamps, fittings, fixtures, all taxes, duties, packing, grinding, drilling, welding, edge preparation, etc. all complete. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%					
a	Minimum galvanisation of 610 g/sqm	MT	44			0.2172421440
2311	Providing and fixing in position of permanent mild steel bolts (class 4.6 as per IS : 1367 and grade 'C' as per IS: 1363) and nuts, washers etc. up to and inclusive of 39 mm diameter and upto 300mm long for structural steel work etc all complete. Payment Terms: a) On receipt of material at site - 60% b) On completion of alignment, fixing, etc. complete as per description/specification - 40%	KG	2190			0.0115374176
2312	Providing and fixing in positing of high strength structural bolts (of property class 8.8 and product grade 'C' as per IS: 1367) and conforming to IS: 3757 and high strength structural hardened and tempered nuts (of property class '8' as per IS:1367) conforming to IS:6623 with hardened and tempered washers as per IS:6649 etc. up to and inclusive of 39 mm diameter and upto 300 mm long for structural steel work etc all complete. Payment Terms: a) On receipt of material at site - 60% b) On completion of alignment, fixing, etc. complete as per description/specification - 40%	KG	200736			1.4943257748
A2312	Supply, fabrication, transportation and delivery at site of high strength structural bolts (of property class 10.9 and product grade 'C' as per IS: 1367) and conforming to IS: 3757 and high strength structural hardened and tempered nuts (of property class '8' as per IS:1367) conforming to IS:6623 with hardened and tempered washers as per IS:6649 etc. up to and inclusive of 39 mm diameter and upto 300 mm long for structural steel work etc all complete. Payment Terms: a) On receipt of material at site - 60% b) On completion of alignment, fixing, etc. complete as per description/specification - 40%	KG	364126			2.9817031015
2313	Dismantling of steel structure, lowering of material and carriage of the dismantled material up to field fabrication shop / projects storage including temporary dismantling, cutting, re-welding, supporting, and restoring to correct position all temporarily dismantled members, re-alignment of all adjacent connected members to their correct positions ( weight of such adjacent members and temporarily dismantled members not payable), scaffolding, staging, tools & tackles, gas cutting, welding, consumables etc all complete.	MT	55			0.0244567904
A2313	Touch up paintings on damaged areas (exposed metal surface) including Surface preparation by manual tools, wire brush/ emery paper etc. Minimum 6 inches peripheral area, adjoining to damaged area to be covered. For exposed metal surface , it is to be painted with Zinc rich epoxy (70 micron) or suitable primer with existing paint scheme as per description of paint specified under item no . A2303,A2305,B2305. The mode of measurement for payment in SQM shall be the actual area of touch up paint.	SQM	2150			0.0328956868
B2313	Touch up paintings on damaged areas(surface exposed to prime coat) including surface preparation by manual tools, wire brush/ emery paper etc. Minimum 6 inches peripheral area, adjoining to damaged area to be covered. For damaged surface, intermediate & top coat to be provided as per description of paint specified under item no.A2305,B2305. The mode of measurement for payment in SQM shall be the actual area of touch up paint.	SQM	2150			0.0203214211
2314	Addition to, alterations in and/or modification of "Erection Marks" including cutting of parts, gauging of welds, cutting, grinding, fabrication, welding, drilling holes, straightening, removal of bends, raising to the required level, painting, transportation, return of unutilised steel pieces to the project store, temporarily dismantling, cutting, re-welding, supporting and restoring to correct position of all the temporarily dismantled members, realignment of adjacent connected members (weight of such temporarily dismantled and adjacent members not payable) etc all complete for the following:					
a	In erected position	MT	55			0.0566928054
b	In fabrication yard	MT	55			0.0467194405
2315	Re-erection of dismantled fabricated structural steel members including carriage of modified "Erection Marks" from the field fabrication shop to erection site, lifting to required posioin, aligning in position, tack welding, final welding and touch up painting including temporary dismantling and re-erection of temporarily dismantled members, cutting, rewelding, supporting and restoring to the correct position of all temporarily dismatnatd members, re-alignment of adjacent connected members(weight of such temporarily dismantled members and adjacent members not payable), scaffolding, staging, tools & tackles, gas cutting, welding, consumables etc all complete.	MT	55			0.0355030794
A2317	Supply, fabrication and erection of minimum 4 mm thick stainless steel liner conforming to ASTM A240 S304 (Type 304) with Mill finish 2B cold rolled, annealed, descaled (pickled) and skin passed on M.S. plate for inside surfaces of hopper & mouth of bunker including fixing with stainless steel studs, bolting (including countersunk), welding with electrode classification E308L for welding of stainless steel to stainless steel and E309 for stainless steel to mild steel etc. all complete. Payment Terms: 1. On receipt of material at site - 50% 2. On completion of fabrication - 15% 3. On completion of erection - 20% 4. On completion of alignment, welding, etc. complete as per description/specification - 15%	MT	88			1.1426024348
2318	Providing and fixing in position PTFE type sliding bearings of reputed manufacturer, individual bearing suitable for required vertical loads as per the construction drawings and for maximum displacement of ±50 mm including all taxes, duties, transportation, installation, drilling, bolting, erecting, aligning etc all complete for following vertical loads. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%					
a	20 Tons	EACH	5			0.0032456861
c	40 Tons	EACH	37			0.0313574045
d	50 Tons	EACH	4			0.0037024185
e	60 Tons	EACH	4			0.0042118331
f	100 Tons	EACH	11			0.0130300438
2319	Providing and fixing flexible open ended bellow strap of neoprene of minimum thickness 2 mm and minimum width 200 mm with aluminium stripped edges as sealing below top of bunker and bottom of tripper floor to avoid the coal dust nuisance all complete.	RM	300			0.0460740827



PART-B						
PROJECT: 1X800 MW NTPC SIPAT TPS, CHATTISGARH, INDIA						
BOQ CUM RATE SCHEDULE (PRICE BID)						
ST NO	ITEM DESCRIPTION	UOM	TOTAL QTY	RATES = TOTAL QUOTED PRICE * WEIGHTAGE / (QUANTITY * 100)	AMOUNT (INR) = RATE * QUANTITY	WEIGHTAGE IN % (UPTO 10 DECIMAL POINT)
2320	Supply, fabrication and fixing of stainless steel pipe hand railing conforming to SS 409 of 32 mm/40 mm dia including transportation, loading/unloading etc. all complete. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	MT	6			0.0787185380
2321	Supply, fabrication and fixing of MS pipe hand railing of 32 mm/40 mm dia including transportation, loading/unloading etc. all complete. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	MT	19			0.0774012904
2322	Supply, fabrication and fixing of GI pipe hand railing (900 mm high) of 32 mm/40 mm dia (Medium Grade) including transportation, loading/unloading, painting etc. all complete. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	MT	14			0.0669210686
2323	Conducting radiography test on welds wherever specified including equipments, measuring devices, gauges, test report etc. all complete.	RM	55			0.0109791000
2324	Conducting ultrasonic test on welds wherever specified including equipments, measuring devices, gauges, test report etc. all complete.	RM	55			0.0021941403
2325	Conducting ultrasonic test on steel plates as per ASTM-A435 or equivalent wherever specified including equipments, measuring devices, gauges, test report etc. all complete.	SQM	110			0.0019988723
2326	Conducting magnetic particle test on welds wherever specified including equipments, measuring devices, gauges, test report etc. all complete.	RM	110			0.0032292706
2327	Conducting dye penetration test on welds wherever specified by the engineer including provision of necessary equipments, measuring devices, gauges etc. all complete (over and above the work already specified in the specifications.)	RM	110			0.0033636485
2400	ROAD WORKS: Road works including all labour, material (unless otherwise specified in BOQ/contract specification), equipment etc. as per specification, drawings and as directed by engineer - in - charge.					
2405	Providing & laying water bound macadam base course in layers of required thickness with stone aggregate 63mm to 40mm size (IRC 19 - grading -1), stone screening and blinding material including screening sorting, spreading to template and consolidation with road roller including carriage, spreading and consolidation of blinding material moorum etc all complete.	CUM	1075			0.0890950750
A2405	Providing & laying water bound macadam base course in layers of required thickness with stone aggregate 53mm to 22.4mm size, stone screening and blinding material including screening sorting, spreading to template and consolidation with road roller including carriage, spreading and consolidation of blinding material moorum etc all complete.	CUM	175			0.0147577169
A2410	Providing & laying 40mm bitumen mastic wearing course over concrete pavement with industrial bitumen of grade 85/25 conforming to IS : 702, prepared by using mastic cooker and laid to required level and slope, including providing antiskid surface with bitumen fine grained hard stone chipping of approved size at the rate of 0.005 precoated cum per 10 sqm and at approximate spacing of 10 cm centre to centre in both directions, pressed into surface protruding 1 mm to 4 mm over mastic surface, including cleaning the surface, removal of debris etc. all complete as per specification, drawings and as per direction of engineer-in-charge. (Considering bitumen using 10.2% as per MORTH specification).	SQM	47000			1.4354010353
A2413	Supplying and laying 450mmx250mmx500mm deep precast concrete kerb stone of grade M-25 with 20 mm nominal size stone aggregate and of shape as per detailed drawing including fixing with cement mortar (1:2) in 13mm thick joints, finishing of joints with neat cement paste, making drainage opening where required etc all complete.	RM	10550			0.3463587176
B2413	Supplying and laying 300mmx250mmx150mm deep PCC block of grade M-25 with 20 mm nominal size stone aggregate and of shape as per detailed drawing including fixing with cement mortar (1:6) in 13mm thick joints, finishing of joints with neat cement paste, making drainage opening where required etc all complete.	RM	2500			0.0164149346
A2415	Supply and laying 200mm dia R.C.C NP-3 type Hume pipe in raised shoulders as rain water drains as per detailed drawing including fixing with cement mortar (1:2) in 13mm thick joints, finishing of joints with neat cement paste etc all complete. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	RM	2550			0.0806641940
2418	Concrete of grade M10 (1 part cement, 3 part sand, 6 parts of 40 mm graded aggregate by volume) as lean concrete, levelling course, mud mat under and around foundations/floors at any depth below finished floor level etc. (Cement will be supplied by BHEL free of cost as per TCC)	CUM	500			0.0675707402
A2418	Concrete of grade M15 (1 part cement, 3 part sand, 6 parts of 40 mm graded aggregate by volume) as lean concrete, levelling course, mud mat under and around foundations/floors at any depth below finished floor level etc. (Cement will be supplied by BHEL free of cost as per TCC)	CUM	1580			0.2135235391
B2419	Providing and laying concrete of grade M35 (PQC) using 20 mm nominal size stone aggregate with approved admixture (if required), in road pavement using fully mechanized paver fitted with electronic sensors, provision for necessary joints including compaction, finishing to lines and grades, curing and providing & fixing forwork etc. all complete. (Excluding the cost of reinforcement and dowel bar)	CUM	12230			2.1906342360
A2421	Providing & laying dry lean cement concrete of grade M10 with 20 mm nominal size graded stone aggregate over a prepared sub-grade including compaction, finishing, curing etc all complete. (Cement will be supplied by BHEL free of cost as per TCC)	CUM	1835			0.2934805572
A2422	Providing and fixing in position MS dowel bar reinforcement including surface painted with bitumen and greasing, dowel end caps with cotton fills etc all complete as per specification, drawing and as directed by Engineer. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	MT	134			0.3052775494
A2423	Providing, straightening cutting, bending, placing in position at any level, binding in position of steel reinforcement of mild steel reinforcements including cost of binding wire, labour, scaffolding transportation to & from stores etc all complete as per specifications, drawings and as directed by Engineer. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	MT	8			0.0182255253

PART-B						
PROJECT: 1X800 MW NTPC SIPAT TPS, CHATTISGARH, INDIA						
BOQ CUM RATE SCHEDULE (PRICE BID)						
ST NO	ITEM DESCRIPTION	UOM	TOTAL QTY	RATES = TOTAL QUOTED PRICE * WEIGHTAGE / (QUANTITY * 100)	AMOUNT (INR) = RATE * QUANTITY	WEIGHTAGE IN % (UPTO 10 DECIMAL POINT)
A2424	Providing & installation of bitumen impregnated fibre board of specified thickness confirming to IS 1838 as joint filler including nailing, coating of both faces with coal tar pitch/bitumin etc. all complete as per specification, drawing and as directed by engineer. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	RM	17500			0.1406550968
A2425	Providing and filling in position hot applied bitumen sealing compound (Grade A) of specified thick confirming to IS 1834 including cleaning, mixing, heating, pouring/injecting sealing compound in gaps in joints, sealant primer etc all complete as per specification, drawing and as directed by Engineer.	RM	17500			0.0286865701
A2426	Providing and laying debonding strip/tape of specified thickness before applying sealant including cleaning etc all complete as per specification, drawing and as directed by Engineer.	RM	1210			0.0025191511
A2427	Providing & laying 75mm/80 mm thick precast interlocking concrete pavers of grade M35 of approved colour and pattern as per specification and recommendation of manufacturer. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%	SQM	26600			0.6485312200
A2428	Providing and laying 20mm thick sand layer below concrete pavers including compaction etc all complete as per specification, drawing and as directed by Engineer.	SQM	26600			0.0359273244
A2429	Providing and laying Impermeable plastic sheeting 125 microns thick laid flat without creases as per IRC 15 etc all complete as per specification, drawing and as directed by Engineer.	SQM	47000			0.0294168371
A2432	Supplying and filling sand for preparation of road sub-base/ sub-grade in layers not exceeding 250 mm thickness and compacted so as to achieve at least 80% relative density as per IS-2720 (Part-XIV) including spreading, watering, ramming/ compaction by manual/ mechanical means, dressing, royalty (if any) etc all complete.	CUM	50			0.0033766282
2900	<b>AC &amp; VENTILATION DUCT</b>					
2901	Supplying, Erection & Commissioning of finished GSS (zinc coating 275 GSM) AC & Ventilation ducting complete with hangers/ supports, Duct supporting structure, threaded rods, anchor fasteners, nuts for threaded rods, support angle, cleats, Consumable items like gaskets, sealant, adhesives, rivets, screws, nuts, bolts, washers etc. (including testing of ducting system by Smoke Test/Light Test ) required for completion of leak proof Ducting system etc. with required fire dampers, motorised actuators , Grills/Diffusers,Dampers & Thermal Insulation with Cladding of AC & exposed Ventilation Ducting all complete work as per technical specification and instruction of Engineer-In-Charge Note: -Contractor shall ensure availability of commissioning supervisor at Site during commissioning. Also, Civil contractor to rectify/ address any leakages/malfunctioning in duct work without any commercial implication to BHEL. Payment Terms: a) On receipt of material at site - 60% b) On complete execution as per item description - 40%					
a	18G.	SQM	3500			0.2735984243
b	20G.	SQM	4500			0.3483634422
c	22G.	SQM	7000			0.5207060452
d	24G.	SQM	5000			0.3681484890
e	Fire damper with auto resetting, limit switches, indication lamps etc.	SQM	60			0.0475725612
f	Motorized actuator with single phase power supply for the above fire damper.	NO	80			0.0664576945
g	Supply air grill/diffuser with VCD (Extruded Aluminium).	SQM	70			0.0370095972
h	Return air grill/diffuser without VCD (Extruded Aluminium).	SQM	80			0.0362594731
i	MS Grills/Diffusers with VCD complete with fixing frames, nuts, bolts, gaskets,washers etc.	SQM	170			0.0299601501
j	MS Grills/Diffusers without VCD complete with fixing frames, nuts, bolts, gaskets,washers etc.	SQM	20			0.0030216228
k	GI Volume control dampers for Duct.	SQM	110			0.0498567756
l	Thermal insulation with cladding of AC (supply & return air) & exposed ventilation ducting with finish as per specification	SQM	12000			0.4710031045
	<b>TOTAL AMOUNT</b>				<b>₹ 40,000,000</b>	<b>100</b>